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How has the University Technical College curriculum delivery model achieved motivational benefit for learners?

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**How has the University Technical College curriculum delivery
model achieved motivational benefit for learners?**

Volume 1 of 1

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A thesis submitted for the degree of Doctor of Education

University of Bath

Department of Education

September 2016

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Research Enquiry – How has the University Technical College curriculum delivery model achieved motivational benefit for learners?

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Abstract

University Technical College (UTC) schools are academies for 14-19 year olds. They are distinguished by close links to industrial and university partners to encourage vocational learning, particularly in STEM subjects. Currently 50 are open in England, with more in development. Their expansion is a key strategic objective in the government's 2016 Educational Excellence Everywhere strategy document.

This research analyses data collected through students' perceptions of their experience of the UTC curriculum model in two detailed case studies. The research questions examine how the approach to the delivery of the curriculum enhances learner motivation. Three main factors are identified as supportive to encouraging learner motivation in the UTC schools studied: a strong focus on developing links with business partners to facilitate career progression goals for learners; an intensive, unique curriculum delivery style; rigorous target-setting in a supportive learning environment. This is a curriculum model which supports independent learning, collaborative learning with peers and vertical -group learning on challenging, employer -led projects.

Keywords: Vocational education, learner motivation, collaborative learning, education policy impact

CHAPTER 1 Introduction

1.1. Introduction and Background Context

“This year has been absolutely AMAZING”

The comment above was written in a questionnaire survey by a year 10 pupil, coming to the end of their first year in a new University Technical College (UTC). This individual had chosen to leave their previous school and opt for a specialised curriculum content in a brand new institution, one of only 17 to be up and running in September 2013 in England. They had chosen to leave behind the security of the familiar for a new type of intensive industry-focused, project-based curriculum, which required them to study over a 40-hour week, compared to the 25-hour week they could have pursued had they remained in their previous school.

Educationalists and policy makers have considered over decades how to legislate and provide for technical education deemed of high value by industry and universities and recognised as being of high quality compared to competitor countries. An extraordinary number of policy changes have been implemented in the state school and post-compulsory sector over the past 5 decades, designed to better motivate young people to enjoy and engage in technical learning. This research looks at the early impact of the UTC vocational education model from the perspective of the learners experiencing it. My objective is to describe the major ways in which I believe that the UTC curriculum model and the unique nature of its delivery have motivated young people in the study of technical and vocational education. I have examined the way in which the intensive weekly engagement with employer –directed project activities has interested and excited learners. I have considered how the need to work in multi-age groups and the requirement to take more responsibility for learning has been appreciated by learners and recognised as contributing to their development as young people. Finally, the positive motivational impact of learners’ experiences in UTCs has been researched and presented as an example of a government initiative, which appears to have had many commendable outcomes worthy of duplication in other types of schools.

The vision of the UTC model is one of an environment where strong involvement with industry partners, the active participation and expertise of university sponsors and the nature of the collaborative, project-based pedagogical approach are all intended to add a new dimension to applied vocational learning. Learners undertake a 40-hour week, for up to four years, giving a potential advantage of more than an additional year of tuition for each two- year period spent in the UTC. The curriculum content is weighted to 60% general education and 40% specialist technical subjects, where innovative types of delivery predominate as examined in detail below. The movement continues to enjoy strong support from government as a policy steer (Hancock, 2014). The latest government education strategy paper, Educational Excellence Everywhere states as delivery priority 6 (Dept. for Education, 2016:64):

We are committed to ensuring that there is a UTC within reach of every city.

The UTC policy promotes a unique state sector programme for learning that aims to encourage and support increased motivation and engagement with technical education in Science, Technology, Engineering and Mathematics (STEM).

The research enquiry has built upon earlier research into the UTC Academy model (Malpass and Limmer 2012, 2013, 2014; Acquah, Limmer and Malpass, 2014 and Bathmaker and Ingram 2014). This early research examined why learners appeared to be very motivated to engage in vocational education. The findings from these studies revealed two key themes, which were considered important in supporting learner motivation: the UTC culture, and the involvement of employers. I have re-examined these two themes and added a third in my research question and sub-questions.

1.2. Research questions, scope and definition of key terms

My research question is

How has the University Technical College curriculum delivery model achieved motivational benefit for learners?

My 3 research sub-questions are

1. **Is the UTC culture an important factor in encouraging learner motivation?** I am including within the term culture the size of the school, the business ethos and the nature of behaviour, the support for learner achievement goals, and the opportunity for a fresh start for learners, as identified in the research cited above.
2. **Do learners report that the involvement of employers with a specialist vocational focus and expertise has an impact on their motivation in the UTC curriculum?**
3. **Do learners report an impact of the unique curriculum delivery style on their motivation?** I am including in this sub-question the unique features of vertical age-integration in an intensive and innovative, project-based curriculum delivery with widespread use of Information Learning Technologies (ILT).

Scope of the Research Enquiry

This research enquiry studies data collected from two of the 39 UTC trusts open by September 2015. It considers government policy directives pertaining to UTC development and curriculum steer during the lifetime of the Conservative/Liberal Democrat Coalition Government operating from May 2010 to May 2015, and the Conservative administration in 2016, although clearly some policy implementation dates from slightly before that period. The most recent Conservative Party Manifesto renews the commitment to expand UTC after May 2015 (2015:34).

This study does not consider the application of these same government policy steers upon school sixth forms or sixth form colleges, studio schools or free schools but rather examines in depth, contextual features relating to 2 individual UTC establishments.

Whilst learner, staff and head teacher views in the case studies are considered, the views of employers themselves, of parents or of university and college sponsors of UTCs have not been dealt with.

The enquiry touches upon the male dominated nature of the learner cohort, but has not considered gender equality aspects in detail.

The enquiry does not examine in detail the pedagogy in the UTC setting because of space constraints, but notes that this may be a strong contributory factor to learner enjoyment, as evidenced from the learner views in focus groups. The nature of teaching is considered to be a significant area meriting further research.

Further, a ‘control group’ of learners aged 14-19 in a non-UTC setting is not included within the data collection and fieldwork. There is certainly merit in comparison, to build on the work already undertaken by Acquah, Limmer and Malpass (2014), Malpass and Limmer (2012, 2013) and Bathmaker and Ingram (2014), however space constraints again suggest that this must be the subject of further study. This earlier research has already identified increased learner motivation as a feature of UTCs and I am exploring further this finding.

A glossary of key terms is provided in the appendices and key terms and themes are defined below.

Learner Motivation has been taken to mean the willingness and interest of learners (as they have themselves identified) to pursue activities in a UTC setting, including reasons for enrolment, experience of the curriculum and enjoyment of activities. I base this on the definition of motivated learners and motivation used by Schunk, Meece & Pintrich (2014:5):

Motivated learners (...) display interest in activities, work diligently, feel self-confident, persist in tasks and perform well (...) motivation is the process whereby goal-directed activities are instigated and sustained.

Government policy directives, implementation and steer has been taken to mean all relevant and applicable government policies and implementation plans during the 6 year period 2010-2016 applying to UTCs and which have had a particular focus on technical and vocation education.

Motivation theories and related observable features in learners and government policy initiatives are discussed further in detail in the literature review in chapter 2 and I make specific links to both of these in the research methodology described in chapter 3. Learner perceptions of their variously defined motivational factors are presented in chapters 4 and 5.

Firstly, this enquiry examines briefly the education policy setting resulting in the genesis of the movement and its support from the coalition government 2010-15. The research enquiry presents the background context in which a significant government policy change, to introduce a free-market element into the establishment of some designated specialist types of academy within the state sector, has taken place with an investment to date of some £400 million. It considers in detail the motivational drivers of choices made by learners to join the new institutions, and examines if there is an impact reported by learners to date of a high-intensity, vocational, collaborative curriculum delivery model upon learner motivation.

A considerable amount of literature exists charting government policy interventions, introductions of new vocational or technical pathways in the curriculum and new types of school organisation, changes in assessment practice and changes to administrative structures and governance of schools. The UTC model is relatively new; UTC schools have been in existence and development for just over six years. Literature and research relating to aspects of operation and effectiveness is surprisingly sparse. It could be argued that given the unique and radical nature of the curriculum model, the significant investment which has been allocated to UTC development to date and the prioritisation of expansion in current strategy, there is an urgent need to continue to examine the early experiences of learners. Further, whilst there is a significant body of literature relating to learner motivation and how to encourage it, the volume of literature or research examining and evaluating the impact of government policy directives on learner motivation is underdeveloped by comparison.

Secondly, the research examines some of the elements of learning considered as particularly important to the UTC curriculum model. These elements of learning unique to the UTC model have included: the extended study week; the specialist content of 40% of the curriculum; the UTC culture and behaviour; the strong links with employers; the extensive use of computers; Information Learning Technology (ILT) and self-directed learning in vertical delivery groups. Other important factors as will be seen below are the high degree of strong support from tutors on goal setting and frequent evaluation and feedback to learners charting progress; the increased confidence and initiative on the part of learners; the improved learner behaviour as a result of greater engagement with highly valued learning activities and the UTC stated culture of supporting learning by encouraging responsibility. I have not examined the literature relating to culture in an organisation due to space constraints, but note that the importance of culture in the UTC model has already been identified in earlier research cited above. Where cultural aspects appear within the literature relating to motivation, I make reference to these. The research questions examine whether UTC learners report these factors as having had greater impact for themselves and whether the curriculum model has motivated them to a greater degree than the curriculum delivery experienced in their previous educational settings, and if so, why. The educational ethos and approach and the collaborative pedagogical model of the UTCs are considered in detail in Chapters 4 and 5, to examine their impact and possible contribution to knowledge.

Thirdly, the research explores motivational theories relevant to supporting learner engagement with education, particularly those dealing with the setting of individual and group achievement goals, goal orientation, those which link to self-determination and those which consider socio-cultural and socio-environmental factors. The research considers how these motivational theories may have contributed to the learner experience in the new institution, and the relevance of earlier research findings of motivational benefits of the UTC curriculum model. The research qualitatively considers the views of learners from the perspective of key elements of a number of motivational theories, so that any judgments about the motivational benefits of the UTC curriculum model can be made from an informed theoretical position.

Finally, the thesis examines possible links between the government policy initiative of UTCs and the curriculum delivery model, the views of learners on the importance of new and different elements within the curriculum delivery and a framework of motivational theories. The argument is advanced that all of these must be considered together if significant changes in the approach to the delivery of vocational education in England are to be realised to achieve a more motivational curriculum in vocational education.

1.3. Research Justifications

As an education manager and consultant, my interest is in researching and applying models that might improve learner motivation and positive outcomes. However governments, policy makers and educators generally will have an interest in a model of delivery of technical education which inspires learners to set and achieve demanding goals, delivers learners who are more employable owing to the nature of their learning experience and a model which is generally accepted to be of high prestige and high worth.

There is a considerable body of literature examining motivational aspects of technical and vocational education, and learner experience of a practical curriculum. These works however do not address the new findings from recent research listed above, of the possible motivational benefits and impact of a concentrated, expanded practical curriculum delivered collaboratively, as presented in the UTC curriculum model, and this is the particular focus of the research enquiry. There are a number of works, which highlight the advantages and disadvantages of multi-age teaching contexts, particularly in the early Primary phase where combining pupils from different year groups is a more frequent practice, especially in rural areas. However, there is a dearth of literature examining specifically the impact upon learner engagement of 14-19 year-olds operating in a collaborative or orchestrated learning environment, because few/no other types of secondary state schools deliver their curriculum in this way. The enquiry therefore examines briefly the impact of group learning and project -based learning in a chosen specialised subject area upon learner motivation, and how peer learning has affected learner experience.

As indicated above, the specialised nature of the choice learners are making is partly reinforced in the recruitment practices of UTCs, which stress the strong future possibilities of learners accessing key local employers. The research also therefore considers learner engagement with their local employers as a motivational factor.

1.4. Summary of Chapters

In chapter 1, the first section of the introduction includes a brief account of the genesis of the UTC model of delivery of specialised technical and general education for the 14-19 age range together with a brief consideration of education policy drivers at a macro level and micro level of an economical, political or social nature giving rise to and influencing the new model.

The second section sets out the research enquiry and a definition of the scope and of terms. It describes and explains the enquiry: the examination of policy changes leading to the establishment of UTC's; a definition of motivational benefit; a description of the elements of the UTC curriculum delivery model considered important in the support of motivational achievement goals as perceived by the learners; the importance of motivational theories and relevance to learner actions and fourthly, examines if all these factors together are needed to result in significant change to learner outcomes in technical and vocational education. The third section sets out the rationale for the research and the researcher's individual interests in the field. The fourth section considers briefly the learners' views on their experiences and motivational impact of aspects of the UTC model evidenced from the case studies.

Chapter 2 provides a summary of the literature relating to the research. The literature review is split into 4 sections. Firstly, literature reviewing policies implemented since the 1940's to create a post-14 curriculum which delivers vocational/technical learning in the secondary and post compulsory phases and which also achieves respect and high status and motivates learners has been examined. This section also documents specific policy steers in the past two decades relating to technical and vocational education, and the genesis of the

UTC model, within a climate of increased competitiveness between state schools.

Secondly, literature relating to curriculum design change in technical and vocational education is considered, particularly literature relating to collaborative or group delivery models, and the importance of ILT (information and learning technologies) within these.

Thirdly, particular theories of learner motivation are briefly outlined and evaluated and the fourth section integrates the bodies of literature on policy drivers of curriculum change, on the innovative nature of curriculum delivery and on learner motivational theories.

Many policy implementations have occurred over the past five decades seemingly without achieving desired levels of high quality vocational education or indeed the high levels of motivation from learners to undertake vocational or technical specialisms such as are demonstrated by learner participation figures in other OECD countries. This thesis presents the argument that all of these factors must be implemented and planned together if significant changes in the approach to the delivery of vocational education in England are to be realised.

Chapter 3 describes the research methodology adopted: the methods used; the timeline; the sequence of activities and processes related to data collection. It presents a justification for the choice, ethical considerations and an evaluation of the strengths and weaknesses of the methodology and approach chosen.

Chapter 4 describes the circumstances relating to learners in the selected fieldwork case studies (R and S). The first 2 sections set out the contextual settings of each example chosen together with relevant circumstances to date. The third and fourth sections set out the key findings relating to the research questions posed in the introduction above. The fifth section evaluates reported motivational aspects of the model emerging from the fieldwork and summarises learners' perceptions of this.

Chapter 5 sets out in sections 1 and 2 a discussion of the key findings emerging from the research and contribution to knowledge. Recommendations for further

research are set out in section 3. The fourth section concludes with personal reflections on the study.

Chapter 2 Literature Review

The Literature Review in this chapter is split into 4 sections. Firstly, I examine policies implemented since the 1940's to create a post-14 curriculum, which delivers vocational/technical learning in the secondary and post compulsory phases and which also achieves respect and high status and motivates learners. This section also documents specific policy steers in the past two decades relating to technical and vocational education, and explains the genesis of the UTC model, within a climate of increased competitiveness between state schools.

Secondly, literature relating to curriculum design change in technical and vocational education is considered, particularly literature relating to collaborative or group delivery models given the direct relevance of these to the UTC model. The importance of ILT within these models is considered, reflecting the importance of digital communication and transactions over the past two decades. This section deals predominantly with social aspects of learning rather than cognitive aspects of learning. The field of learning is considerable and a delineation of the scope of learning theories is important to meet the space constraints of this thesis. Further, in the context of a UTC, the social learning features could be argued to merit further consideration: the cognitive aspects of learning have already received considerable attention in the literature, but the social learning of individuals who have chosen to participate in a largely un-researched new type of curriculum represents a current gap in knowledge.

Thirdly, selected theories of learner motivation likely to be relevant to UTC contexts are briefly outlined and evaluated. I have hypothesised that learner motivation to join a UTC will reflect a number of circumstances: a desire to engage in the subject specialism; an interest in greater interaction with local employers with the perception of a stronger pathway to a defined employment target; a wish to make a new start; an acknowledgment that achievement could be improved; a goal to improve a sense of self-worth or a desire to experience a new building; state of the art resources; greater use of technology. I have therefore considered motivational theories that attempt to explain these hypothesised circumstances. The literature review in section 2.3 which looks at theories of motivation has used an existing categorisation of types of

motivational theories owing to the large number of theories on aspects of motivation and space constraints.

The fourth section integrates the bodies of literature on policy drivers of curriculum change, the innovative nature of curriculum delivery and on learner motivational theories. In this section I have reviewed the boundaries of the literature relevant to the UTC context and identified gaps in the literature and in current knowledge, and detailed those that have been examined in this thesis.

2.1. Government policy interventions in Technical and Vocational Education (TVE)

2.1.1. The academic, the technical and the general curriculum

During the early part of the twentieth century, development of technical education made slow progress. Edwards (1960:18) gives a particularly comprehensive account of key milestones and argues (1960:25) that the Spens report (1938:372) recommended the establishment of technical high schools with a distinct curriculum, creating a conceptual division between secondary and technical education, which persists to the present day. Further, the Norwood report (1943:139) confirmed many of the assertions in the Spens report and advocated

“that there should be three types of education, which we think of as secondary grammar, the secondary technical and the secondary modern.”

In this way some of the divisions and perceptions of different types of school and different types of abilities of school pupils attending those schools were reinforced. The 1944 Education Act placed a duty on Local Education Authorities to organise education into 3 stages, primary, secondary and further and specified that pupils should be classified at age 11. A significant problem was exactly how to classify pupils to allocate them to the three different types of schools, with little clear guidance for local authorities and many varying views prevailing at the time.

Edwards (1960:20) gives a useful definition of the aim of secondary technical schools:

to provide a sound secondary education by means of a broadly based general course combined with certain specialised studies which have a vocational significance and which are used to capture the imagination

of pupils in order to maintain their scholastic interest and so to prolong and further their general education.

The recognition of vocational courses as being critical to engaging student interest is an important theme, which will continue to emerge in the literature. Government reports continued to suggest a non-academic or vocational curriculum, for example the Crowther Report (1959:468), which proposed a new technical curriculum to run alongside the academic stream.

Vocational education from the 1960's until the 1980's perpetuated the divisions created earlier. There was an attempt to create technical grammar schools, which did not become widespread and subsequently died out, and a range of government initiatives to promote practical education, deemed technical, to a particular category of learners, not perceived as academically inclined. These curriculum reform initiatives included: the introduction of the Certificate of pre-Vocational Education (CPVE) and Technical and Vocational Education Initiative (TVEI) in 1983, both designed for learners in the lower achievement bandings; GNVQ and NVQ qualifications in the early 1990's; Curriculum 2000 and Advanced Vocational Certificates of Education (AVCE's); the relaxation of compulsory National Curriculum subjects such as Modern Foreign languages at KS4 in 2002; 14-19 Diplomas and Entry to Employment in 2005.

A determining factor in curriculum organisation during the mid to late 1960's was the school leaving age, which rose to 16 in 1972 with the roll out of the Comprehensive school policy. More recent policy announcements in 2007 have seen a further adjustment such that all learners must remain in education or training until they reach 18 years of age, as introduced from September 2015, largely as a response to the low participation rates of 16 and 17 year olds recorded in 2006 (76%), which compared very unfavourably to comparator Organisation for Economic Co-operation and Development (OECD) countries. Significantly, international comparator statistics revealed the very small numbers for example on Advanced Apprenticeships as an alternative to the traditional 'A' level course regarded as the Gold Standard (2% in 2006, Hodgson and Spours 2008:4). Throughout the period of these curriculum

reforms a pervasive division remained at the end of national curriculum year 11, when most learners faced choices at the age of 16, and approximately 30% changed institution, with the expectation of a new start from a situation in which they had regarded themselves as partly disengaged from the education process. Diplomas in particular were described in 2007 as providing a motivational pathway for disaffected learners. A further division also remained embedded during this period: the association of the vocational curriculum with lower achieving pupils (Bathmaker, 2005:82). This remained the case even in respect of the Business and Technology Education Council's Awards – the BTEC National Diploma; arguably the most widely recognised, respected and accepted vocational qualification to the present day (Hodgson and Spours 2008:62).

During this intense period of vocational curriculum reform and intervention from the early 1980's to 2010, further new flexibilities of structure were permitted. For example, the Education Act in 1988 removed schools from local authority control and the 1992 Further and Higher Education Act saw the incorporation of Further Education Colleges away from local authority control. These new freedoms marked the beginning of the introduction of market forces and increased competition into the education debate, which reflected the direction of change implemented by the then Conservative government in the early 1990's. The advent of New Labour in 1997 came on the back of a large number of curriculum reviews, as indicated above, and a new direction was forged on the back of the Dearing review of 1996 in which a 14-19 education phase was again promoted. This 14-19-phase definition received considerable attention during 2003 and 2004 with the Tomlinson working party and related professional consultation. However, proposals for the demise of 'A' levels within an overarching qualification system were never implemented, and the Gold Standard remained alongside the creation of 14 Diploma Pathways of vocational content. Although structural reforms and focus on results in national and international league tables at 16 and post-16 had created a climate of competition between institutions, collaboration in curriculum delivery was occasionally encouraged, for example as with the Increased Flexibility Programme in 2001 or New Diplomas in 2005. However, the spirit of cooperation, rather like the New Diploma initiative, was short-lived.

2.1.2. The context of technical and vocational education in England at the start of the coalition government

The Coalition government took power in May 2010 with a view that technical and vocational education in England was in a number of ways deficient because it was failing to produce young people with the skills industry was claiming it needed to enhance UK competitiveness, particularly skills in the STEM field (science, technology, engineering and mathematics). This perceived failure had occurred despite a large number of reviews of vocational education as indicated above and a considerable amount of policy change over the previous fifteen years resulting from such documents as the Beaumont Review of NVQ's in 1996, the Dearing review of Qualifications for 16-19 year olds in 1996, the Curriculum 2000 review, the 2002 Tomlinson Enquiry into A level standards, the 2002 Department for Education and Skills (DfES) proposals for 14-19 education, the Nuffield 14-19 Review 2004-2008, the DfES 2005 14-19 implementation plan, the Capey GNVQ Review in 2005, the Foster Review of Further Education in 2005, the 2006 Specialised Diploma implementation, the 2006 Leitch Review of Skills in England and most recently, the 2011 Wolf review. A number of works deal in more detail with the perceived failures of technical education, for example Finegold and Soskice (1988), Young (1998), Keep and Payne (2004), Keep (2005), Bathmaker (2005) and Lumby and Foskett (2007).

2.1.3. The development of the UTC model

In a speech to the Edge Foundation on 29/9/11 commenting on the continuing failure to “provide young people with a proper technical and practical education of a kind that other nations can boast”, education secretary Michael Gove (2011) stated:

We're already using our radical schools reform programme to promote new institutions designed to support high-prestige technical education with a clear link to employment and further study. The university technical colleges (...) tick all the boxes (...) [they] will offer high quality technical qualifications in shortage subjects like engineering.

The University Technical College model (UTC) began to be championed by the coalition government in 2010 (Baker 2013:29) having been created as a concept by Lords Baker and Dearing in the years prior to this, following extensive curriculum reform in 2004 and the formulation of a 14-19 phase of education. The intention was to create institutions that would provide a broad and balanced curriculum linked to employer-based project pedagogy and sponsorship from universities and industry. UTCs recruit students from the age of 14 and provide intensive employer-supported learning up to the age of 19. They are designated academies with one or more clearly signaled subject specialisms, predominantly within the science, technology, engineering and mathematics (STEM) subject areas.

Michael Gove announced the commissioning of the Wolf report on the 9th September 2010, four months after taking office as the new Education Secretary, set within a government context of dealing with recession, the national debt and recovery. The letter to Professor Wolf and the accompanying written ministerial statement (Gove, 2010a) made clear the context of the Wolf review:

As you know, for many years our education system has failed to value practical education, choosing to give far greater emphasis to purely academic achievements. This has left a gap in the country's skills base and, as a result, a shortage of appropriately trained and educated young people to fulfil the needs of our employers. To help support our economic recovery, we need to ensure that this position does not continue and in future we are able to meet the needs of our employers.

The press releases from the Department of Education and other speeches at around the same time provided more information on the underlying assumptions held by the new coalition government, which resulted in the review request. In a speech to the Edge Foundation, Gove (2010b: 2 -3) commented on:

a problem which bedevils us still. The problem is our failure to provide young people with a proper technical and practical education of a kind that other nations can boast. (...) success was judged on the

sheer number of young people who could be processed through the system rather than giving proper attention to what they had learned.

This comment highlighted that what young people *learn* within their curriculum was to receive new attention under the coalition government's proposed review of the National Curriculum.

So what were the assumptions underpinning Mr Gove's statements (2010b:8) linking the assessment of technical education failure with a lack of UK competitiveness in global markets?

The resultant coalition government policy steer 2010-2015 can be evaluated against a framework of current commentary on vocational education policy.

The continued focus on skills deficiencies of young people reflects the Conservative Party Manifesto (2010:15)

'We are at risk of creating a lost generation of young people without the skills to participate in the workforce, without hope for the future.'

The highlighting of skills gaps and the shortage of appropriately trained and educated young people are nothing new. Ball (1990:74) referring to the policy formation period of the right during the mid 1980's notes

"The explanation of Britain's economic regression and lack of competitiveness is taken to be the lack of individual motivation and skills."

A summary of issues to be addressed, considered pertinent by the coalition government's then minister of state for education might then include the following:

The current vocational education system is failing too many young people;
Lack of skills in young (and older) employees is adversely affecting the UK's ability to be competitive;

Employers have skills gaps and needs, which cannot currently be resolved;
The status of 'skills' is insufficiently high, and young people are poorly motivated to pursue technical education;

What young people learn is inadequate to fit them for the current global economy;

The UK has much to learn from other European and International vocational education systems.

A number of statements at the time of the publication of the coalition government's 2010 manifesto and specifically relating to vocational education indicated an aspiration that market forces and private-industry sponsorship of the UTC model, coupled with an intensive real-world focus would be the answer to the perceived failings of technical and vocational education as suggested above. For the purpose of this study, the perceived failings of the technical education system and the lack of motivation in young people to undertake technical education are relevant because they resulted in the proposal of UTCs.

2.2. The changing nature of the delivery of TVE

2.2.1. Innovation within the delivery of curriculum

At the same time as government policy was reshaping to attempt once again to address the perceived failings of technical and vocational education, the nature of curriculum design and pedagogy also came under scrutiny and policy change in both areas is mutually dependent. The traditional image of teaching and learning has been one of the teacher in control at the front of the class (the sage on the stage), passing on facts and knowledge to rows of assembled learners (Jacot, Noren and Berge, 2014:23; Prensky, 2012:128). Over a number of decades a problem with the motivation of some members of the rows of learners, an unwillingness to comply and to absorb facts, has been consistently reported with solutions proposed through curriculum content change. Over the past two decades with huge changes to learner ability to access digital information and to engage in rapid on-line communication and problem-solving, there has begun to be recognition that change is needed in the way learning is delivered and the way in which dis-engaged learners need to be re-engaged by moving to a more collaborative style of teacher delivery (the guide on the side).

As Pring (2013:9) notes:

Many, if not the majority of, young people have developed independently an expertise in the use of technology. Perhaps the normal institutional framework for providing education for all, with its carefully controlled curriculum, should be questioned.

The move to a learner-centred focus and to more experiential types of learning is theoretically reflected in the stated curriculum model of UTCs, which places a strong emphasis on collaborative learning and partnership with employers and universities in project-based learning with a practical application. The development of collaborative learning in the literature has therefore been considered briefly below.

2.2.2. Collaborative learning, group and network learning

Lave and Wenger (1991) made a significant contribution to the research into collaborative learning, considering the nature of apprenticeship and how individuals learn work-related tasks in a number of settings. They described communities of practice (1991:98) engaged in skill learning and deployment and linked the new terms “situated learning” and “legitimate peripheral participation” to describe how they viewed work skills acquisition. Situated learning explained how skills were acquired in a socially interactive process with more experienced individuals coaching new learners. Legitimate peripheral participation described how individuals learning new skills from others often engaged in a process of observing and rehearsing the new skills on the edge of a very skilled and experienced circle of colleague-mentors. Gradually as individuals learned the skills by observation and practice, they became assimilated into the group, having acquired the requisite skills and experience through a social learning process. Lave and Wenger firmly asserted that learning is not solely an individual pursuit, or simply a question of assimilating structures and processes: it depends on interaction between individuals, and adaptive structures (1991:17). They moved away from earlier views that pre-existing structures are all important, that learning is permitted but constrained by the powerful (an impact of social class on knowledge acquisition) or that learning is principally located in the minds of individuals. Their case studies clearly demonstrated a localised agenda to the learning or skills acquisition process (such as the apprenticeship of Yucatec midwives or that of naval quartermasters, 1991:67 and 1991:73) and it is therefore perhaps inevitable that some of the processes described cannot be fully analysed, generalised or interpreted: there is subjectivity within a localised skill acquisition. “Legitimate Peripheral Learning” (LPP) was the term derived to

explain their new thinking on the social, interactive and flexible process of learning, and a way of understanding learning (1991:29):

By this we mean to draw attention to the point that learners inevitably participate in communities of practitioners and that the mastery of knowledge and skill requires newcomers to move towards full participation in the sociocultural practices of a community.

For Lave and Wenger (1991:31) “situated learning” was the term they refined to describe a process considered as learning by doing, but situated, in that it related to a particular set of local circumstances, with learning strongly linked to social practices. Lave and Wenger’s contribution was to highlight the importance of communities and social interaction as a necessary adjunct to the learning process.

Wenger (2000:226) developed earlier theories by considering the impact of socio-cultural theories of learning on communities of practice, with competence and experience being defined as two fundamental aspects of acquiring knowledge or learning.

“In a social learning system, competence is historically and socially defined (...) knowing, therefore, is a matter of displaying competencies defined in social communities.”

Wenger (1998:6) also asserted that belonging is a critical aspect of a community of practice and that this could take three different modes if successful learning is to take place: engaging with others in an activity; imagining ourselves within our community; aligning ourselves to a community in a values sense. All of these reflect a socio-cultural perspective to learning and can be seen demonstrated in the case studies in Chapter 4 below.

Argyris and Schön (1996:xix) summarised the literature as falling into two distinct camps: a first, rooted in practice, enthusiasm and experience, to which they extended an almost latest fad label, and a second, altogether more sceptical academic approach, which advanced examples of learning organizations without critical clarity on benefit or effectiveness. They noted (ibid) that both approaches accepted their developed concept of ‘double-loop’ learning or lower-level and higher-level learning. Argyris and Schön (1996:xx) also advanced the view that both types of approach to organisational learning

in their view failed to stress their defined critical factors within organisational learning: the nature of the organisation such that it is able to learn; the question of whether organisations are able to learn at all, and which aspects of learning are desirable.

Robison, Schmid & Giles (2002:6) concluded that social relationships between a provider and a recipient are of fundamental importance and stressed the importance of sympathetic relationships (2002:10). This concept of sympathy within relationships, which might be considered as an influence of affect upon a transaction, has been considered further in later sections insofar as it has appeared to play a significant, but largely to date un-researched role in the curriculum delivery model presented in UTCs.

2.2.3. The development of social learning theories supported by personalised or individualised learning approaches

During the 1990's the importance of social learning was further developed by emerging concentration on the importance of individually tailored approaches to learning, where the learner was increasingly seen at the heart of the learning process in the move away from earlier didactic teaching delivery styles. Within this new direction, Young (1998) turned his attention to the curriculum and considered the relative roles of academic and vocational content. He acknowledged the importance of emerging new technologies and their requirement for revised pedagogy, and proposed a way of bridging what he considered to be the continuing failings of the academic and vocational divide: by forging a better link between subject knowledge and the everyday skill requirements of the world of work in a consideration of a modular curriculum design for future generations of learners. He acknowledged the continuation of the low skills equilibrium previously identified by Finegold and Soskice (1988), proposing a curriculum which had a stronger link to work experience and the requirements of the economy, a renewed focus on science and technology and a modular assessment strategy to enable combinations of units. Many of these elements have found a presence in the current UTC curriculum model, for example, where professional qualifications are achieved alongside traditional A level subjects.

Young was supportive (1998:179) of Lave and Wenger's work, albeit noting that a potential criticism of their community of practice theory of learning was a possible lack of focus on the actual content of what was being learned in favour of an augmented stress on the way in which learners were learning. He was also supportive of Engeström's (1994:43) concept of expansive learning, considering that the latter's work built on the notion of learning as a social process but added a new dimension of individualised learning through a diverse range of activities and in non traditional or multiple settings:

The issue therefore is not to polarise formal/informal or school/non-school centric learning as good or bad (...) it is to explore and enhance the diverse forms of 'community of practice' both within and external to schools, colleges and universities and the extent to which they create or inhibit opportunities for expanded learning.

Young's view is particularly relevant to the findings listed below in Chapter 4 from the case studies. Expansive learning is defined by Engeström as a process of change arising from significant motivation and analysis by individuals to fundamentally alter a learning process to achieve improved results through deep learning. Although the individuals cooperate in a community of practice in a socially constructive way, there is an individual element in the motivation for change and the willingness to consider non-traditional learning elements or contexts, as reflected in the observed UTC learning environment. This view could also be argued as a forerunner to current concepts in learning delivery such as the flipped classroom approach, where learners are not predominantly given facts during lessons, but research the facts or parts of subject and syllabus knowledge themselves outside of formal teaching time, and come to lessons ready to participate in discussion or clarification of the facts learners have researched for themselves. This trend towards the encouragement of learners taking personal responsibility for engaging in increased research of the learning material, using new media or new types of learning networks such as the internet, is again relevant to the UTC model.

The new century saw a continuation of this change of emphasis and greater consideration of the individual's learning needs and how they could be supported in learning delivery styles.

Personalised Learning was established as a concept in 2006, following the Gilbert report. It described the distinct move in ethos, away from standardised whole class prescriptive approaches to learning towards a more individually tailored differentiated approach, where learners were able to ask questions and more importantly for the scope of this research, could coach each other. At around the same time and in the field of management theory, Knight (2002) asserted the social importance of ‘network learning’ as distinct from ‘learning networks’. She argued that individuals learning within organisations are interrelated to interorganisational learning and that both are important. She defined three key features of network learning (2002:430): actors, their relations; their institutional embeddedness. The last of these reflected the importance of the feeling of belonging in supporting a positive learning experience. Knight’s views mirror those of Lave and Wenger cited above, that learning is a social and situated process. They draw attention to the managerial aspects of progressing educational change. The leaders in UTC institutions inevitably lead on change management as new models of curriculum delivery are expounded and cascaded. Within both the examples detailed in chapter 4 below, a sense of organisational belonging, as described by Knight, is a strong feature in the learning experience.

Field (2005) further considered the identified link between the content of the education curriculum and the requirements of the economy in the new century, considering the importance of social capital to be generated through knowledge acquisition supported by social networks. In this way, knowledge and learning would be supported and enhanced through the social networks of individuals, as documented in the works of Coleman (1988) and Putnam (2000) on social capital, with social capital being defined as a resource accessible to particular communities. Field (2005:9) also asserted the importance of social relationships in learning:

the architecture of people’s relationships with one another, and the quality of learning they undertake, are fundamentally linked, and the two can be harnessed to one another in a mutually beneficial manner.

Field has worked on these beneficial mutual links between social capital and learning networks largely applying them to lifelong learning contexts. Field’s view is referred to briefly because the assertion that social networks support

learning and motivation has been briefly examined in the case studies, in relation to the strong presence and influence of employers and employer networks on the UTC curriculum, as set out in chapters 4 and 5 below.

The theme of individuals learning with and from each other in a peer network took further shape later in the first decade of the new century, with the development of the concept of orchestrated learning. The term “orchestrated learning” first appeared in 2008, (Hämäläinen) to describe the process of engaging a learner’s individual talents in a group interaction and learning process, often using internet communication, the objective being to create a whole greater than the sum of the parts. The concept articulated the role of learners engaged in an activity with their own specialisms and the role of the teacher, which then became to make the best use of each individual’s talents, by ‘orchestrating’ the learning activity and the part played by each individual in the group activity. Although contested as a term (Dillenbourg, 2013) and reaffirmed (Kollar and Fischer, 2013), the term remains in use and has reflected the emerging need to encourage collaboration between learners and between learners and instructors. This is both to reflect the nature of team work in a global, digital age, but also to encourage the employability skills of young people, so often a subject of criticism as referred to elsewhere in this research. The relevance of the model has been explored further below, as it has been reflected in the views and experiences of learners in UTC settings.

Michael Fullan (2013a, 2013b) has written extensively on the importance of the role of learners in choice of pedagogical tasks and strongly advocates the benefits of choice in facilitating learner engagement and improved performance (2013a: 85). He considered that a number of educational systems designed to bring about improvement were focussed on the wrong issues, in that they were not sufficiently learner-focussed. He used the term motion leadership to describe how leaders in education moved improvements forward by seeking greater commitment, and motivation, from learners. He argued that learners experience greater empathy with their everyday learning and derive greater intrinsic motivation, when a stronger subjective connection was created between the learner and their everyday progress in school on work tasks perceived by learners as meaningful (2013b: 22). He considered much current

curriculum content as out-dated with more focus needed on learning partnerships between student and teacher to integrate new technologies (2013a: 110) and to be constantly aware of daily progress goals. Fullan (2013b: 33) also advocated strongly the increased use of technology to enhance learner empathy with and subjective appreciation of school tasks designed to be current and realistic. He cited Prensky's 10 measures for achieving maximum impact on children's education (2013b: 31), described below and revisited in chapters 3 and 4.

Prensky has written widely on learner disenchantment with learning and the boredom he believes is experienced by learners subject to many traditional curricular models currently operating in different countries, including countries holding leading positions in education league tables. He has proposed features of an alternative approach to curriculum design and delivery as fundamental to the way in which young people's education should be organised globally. He shares with Fullan a desire to see outmoded requirements of curriculum deleted, as he explains it, and time allowed for more useful tasks designed to instil character and approaches to good citizenship in young people.

His ten measures for achieving impact (2011:16) are firmly focussed on the learners at the heart of the activity, taking charge of their learning, learning collaboratively, and finding out answers through their own research. He has argued that these features are elements of much recent new pedagogy, including task- or project-based learning (PBL), flipped classroom approaches and collaborative, group learning contexts. He has also made a plea for more learning to be undertaken and assessed in group or team contexts (2011:10) on the grounds that this most reflects realism and real life situations in the world of work. Bell (2010:43) has also presented a strong argument for increasing the amount of PBL in current pedagogy as a possible means of more strongly developing team-work skills needed for future collaborative and creative working.

As will be seen below, a number of these methods (peer-to-peer teaching; offering students choice; allowing students to be primary users of technology; allowing students to research the answers to guiding questions on their own within PBL; treating students as learning partners) are strongly featured in the

UTC curriculum delivery model. For this reason, data analysis in the field during the main study was partly based on Prensky's ten impact measures, to test their applicability to the UK UTC context.

2.2.4. Other current examples of innovative types of delivery

The increased dominance of digital activity has been reflected in the development of online learning and online learning communities. The Learning Futures programme began in 2007, funded through the Paul Hamlyn Foundation (www.phf.org.uk) and links digital communities of learners and teachers online to share expertise, resources and effective learning experiences with the objective of preparing learners more effectively for life in the global, digital workplace. It uses PBL and extended learning relationships as key strategies in its work. Originally devised as a programme for schools, building on earlier success of the Musical Futures programme, it has now been extended into the Further Education sector.

The NISAI Education Trust (www.nisai.com) also provides an online platform, the Nisai Virtual Academy, to provide learning and develop communities of staff and learners, particularly those who have experienced barriers to accessing education or who cannot currently attend school. A considerable emphasis is placed on affiliation, and the website states that "The use of House groups (or Nisai tribes as they are known) gives learners a sense of belonging."

Both the Learning Futures and Nisai platforms use strategies to create this sense of belonging and shared identity, already identified in the literature above as being effective for encouraging engagement, interest and motivation.

This brief consideration of the literature documenting new types of learning delivery, especially those which endeavour to encourage autonomous learning through the internet has offered examples of the benefits for learner motivation and achievement which have been found in the research to date. However, it is also important to consider the importance of others in the construct of learning as a social process, as advanced by authors cited above. As Pring (2013: 96) noted:

The group matters, and the skilful teacher will utilise the group in encouraging learning for all. Properly orchestrated interactions within the group enhance learning.

The role of the teacher, educator, trainer, learner support worker or facilitator is also of critical importance in the assimilation of learning material. As McLagen noted (2011:37):

Learning professionals are increasingly required to support a type of self-service learning, where learners identify and accept the support and help they need to achieve education or learning tasks and where the approach of learning professionals towards each learner's individual needs is increasingly targeted, focussed and differentiated.

Elements of changing pedagogical approaches to learning are evident in the literature referred to above, but space constraints dictate that new approaches to learning theory can only be briefly mentioned.

This section of the literature review has documented a number of themes recurring in a consideration of the curriculum content and policy relating to the delivery of technical or vocational education. Improving access and life chances through concern for social justice has triggered curriculum initiatives over the last 6 decades. There remains a vigorous debate on the nature of the academic and the vocational curriculum and the degree to which it could or should be integrated. There is a similar debate on the nature of education and learning and what could or should be the curriculum content for young people and how far this should be linked to preparing young people for their future, or the economic needs of the UK or its standing in International Education performance league tables.

As the literature is extensive, selected examples have been given of the importance of networks or communities in learning; particularly peer networks and their apparent positive impact on learner motivation, as this appears directly relevant to the UTC model. The importance of global digitisation and its consequent influence upon the nature of learning delivery has been briefly highlighted due to its relevance to this study.

Section 2.3. Theories of learner motivation in education

As noted above in section 2.1, government policy interventions over the past decades have had as an objective the often-stated need to motivate young people to engage in technical and vocational learning and motivation therefore is a critical area in this research. I have not considered within the scope of this study the merits or otherwise of the stance taken by governments in wishing to influence learner motivation through a particular type of curriculum content; I merely note that such stances have been adopted as stated in numerous policy documents cited in this research. In section 2.2, I documented changes in pedagogical approaches to learning and the move to a learner centred collaborative approach, which must be also considered in tandem. In this section I have examined motivational theories in the literature and selected a number, following an existing classification (Murphy and Alexander, 2000:8), which specifically relate to the hypothetical drivers of UTC learner motivation as examined further in chapters 3 and 4.

There is a need for motivation research in UTC contexts; this is a key government policy initiative and to date very little research has examined the motivation of learners to choose a UTC learning location, or how their learning experience in a UTC impacts upon their motivation.

However, the literature relating to learner motivation is huge and complex, for example, Deci and Ryan (1985:33) set out in tabular form a description of 26 approaches to the single subject of intrinsic motivation. The complex nature of defining motivational theory has been referred to by a number of commentators in the field (Pintrich, 1994:139; Murphy and Alexander, 2000:6) and at times this leads to “fuzzy” boundaries between theoretical schools and much cross - referencing in works. For example, Locke and Latham (1990) included aspects of expectancy theory into goal setting theory, whilst Bandura (1986) included goal theory and system theory concepts in his social-cognitive theory. I consider that an analysis of the various links between UTC practice and motivation can be best achieved by looking at UTCs through a range of motivational theories to help me analyse learner experiences. Therefore I have selected 5 types of motivational theories, according to Murphy and Alexander’s (2000) classification, which are within the scope of the study directly relevant

to learners in UTC contexts, and have explored these briefly owing to space constraints. Murphy and Alexander analysed over 120 items of research literature and together with a renowned expert panel identified 5 thematic areas within their corpus of motivational terms: goal theories; intrinsic motivation; extrinsic motivation; interest motivation; self- schema motivation. Goal approaches to motivation include ego goal theories, learning goals, mastery or performance goals, task goals, work avoidance goals and social goals. Interest motivation is sub-divided into individual interest or situational interest and the self-schema theme incorporates agency theories, attribution theory, self-competence and self-efficacy theories.

Fig.1. Classification of types of motivational theories.



Basic definitions of the various categories of theory are set out below in the relevant sections and these are based on the more detailed and very comprehensive definitions proposed by Murphy and Alexander in their research (2000:12). It has not been possible because of the volume of literature in the field to present anything other than a basic introduction to each of the five categories, and all have been considered in this study so as not to prejudge the outcomes of the data collection.

Murphy and Alexander's definitions of the various theories (2000:28) present extremely useful lexical and conceptual summaries that nevertheless illustrate fully the complexities involved. The inter-related nature of concepts was succinctly described (2000:40):

In our charting of achievement-motivation terms, we rarely encountered a study that did not define, illustrate, or elaborate its central constructs by mentioning related motivation terms. This pattern suggests that there is little true independence among achievement-motivation constructs.

Bearing this in mind, I have drawn heavily on Murphy and Alexander's corpus of 20 motivational terms (2000:8). I have also built on the early research undertaken to date and cited above, into the suggested motivational drivers for UTC learners. Further detail is given in section 2.3.5. of particular motivational theories likely to be relevant to UTC learners.

2.3.1. Goal setting theories

In the literature describing motivational theories, goal setting theories and approaches have been developed by a number of authors. Goal setting theories hold that where learners choose a goal for themselves, the choice drives their actions and supports their motivation. In education, goal setting theories are broadly defined by Murphy and Alexander (using Wentzel, 1989) as "what students want to achieve in their classes, be it academic or social". Social cognitive theories have emphasised the importance of goal setting on motivation to learn (Locke and Latham, 1990, 2002). Locke and Latham

(2002) shared the earlier view of Deci and Ryan that those goals that were set by individuals themselves had a greater motivational impact upon learning than when goals were imposed on an individual. Acknowledgment, acceptance and affinity with any given goal were also identified as important factors in group goal setting contexts such as group project work in an educational setting. Cooperative learning was also identified as significant with peer encouragement and equal division of labour to achieve tasks within a group goal context. These aspects are significantly reflected in the UTC settings documented in chapter 4 below. The importance of goal setting as a factor within motivation to learn of individuals or groups continues to be regarded as extremely significant in current times. There is a link between carefully designed appropriate goal setting and high performance (Locke and Latham, 2013:5).

Vygotsky (1978) explored the Zone of Proximal Development as he termed it in the late 1920's and early 1930's, in which peers or learner and teacher could learn from each other with teachers and peers providing support. Vygotsky believed that children's learning occurred as a result of stimulus from a more able or more-developed individual, with a clear link to the learning process facilitated by the more experienced peer. The peer would provide support, which would be variable depending on the learner's ability. The important factor identified was that the best condition to achieve learning was when the task goal set was slightly beyond the learner's abilities: neither too challenging nor too easy. This factor has been reflected in many subsequent experiments and confirms the importance, in education, of gauging learning and assessment tasks for goals and targets at the right level for the learner. Critical differences remain on the correct interpretation of Vygotsky's ideas, but personal goals, shared goals and group goals were all considered to be important motivators of behaviour and particularly learning in education in social cognitive theories. In the UTC context, there is extensive use of role models to improve learner motivation, for example visiting employers as employer-coaches or mentors. The employer-coaches set targets for learners in addition to teachers, and learners found this useful.

Goal orientation theorists moved attention from the setting of goals by an individual to focus on the possible reasons why learners wished to achieve particular goals (Kaplan and Maehr, 2007, Pintrich, 2003). Goal orientations were considered as falling broadly across a number of categories: learning goals; mastery or performance goals; individual ability-focussed goals. These different categories became fused into the orientation displayed by an individual to achieve something based on their own internal standards and aspirations, *the mastery –goal orientation*, (Ames, 1992; Dweck and Leggett, 1988; Maehr and Midgley, 1991). Also important was the wish to demonstrate skill or achievement to others, a desire to better the achievement of others being judged by normative benchmarks or *the performance-goal orientation* (Dweck and Leggett, 1988; Midgley et al., 1998; Pintrich 2000).

Schunk, Meece and Pintrich (2014:229) noted that research indicated positive correlations between mastery goal orientations in learners and better cognitive outcomes; this is important to the consideration of the UTC delivery model in that, as the findings in Chapter 4 indicate, a mastery orientation in developing skills in the specialisms of the UTC curriculum was identified by learners as being an important factor in learner motivation.

More recently attention has been focussed on a dysfunctional attitude to achievement of goals, for example a rejection of set tasks and a resignation to individual under-achievement with a fear of attempting success. This latter manifests itself in educational settings as ‘test-anxiety’ or a deliberate choice of non-challenging simple tasks in order to preserve an individual’s level of achievement as static, so as not to threaten the individual’s self-esteem or self-worth. Hill and Wigfield’s (1984) research revealed a strong link between test anxiety and level of achievement. Dweck (1975: 674) developed the concept of “learned helplessness” where individuals gave up on tasks to preserve a sense of success and self worth. Put simply, if they didn’t try to do something, they couldn’t be held accountable for failure. The possibility of future successes was not compromised and a particular mind-set was enacted. Learned helplessness was not observed in either of the two UTC case studies, but is mentioned here because steps are actively taken to ensure it does not manifest itself: learners are expected to and do set and achieve challenging learning goals.

Ford presented a useful comprehensive summary of 24 categories of motivational goals (1992:174) and argued that despite numerous attempts to produce an overarching theory of human motivation, this has proved elusive, prompting the question of whether such a task could be realised. Ford (1992:70) himself attempted to unite motivational theories into one overarching meta- theory, which he termed Motivational Systems Theory (MST). This held that the motivational actions of individuals were a function of many factors grouped into four categories as: skill; motivation or will; individual capability; environmental responses. Ford (1992:248) considered that:

Effective functioning requires a motivated, skilful person whose biological and behavioural capabilities support relevant interactions with an environment that has the informational and material properties and resources needed to facilitate (or at least permit) goal attainment. If any of these components is missing or inadequate, achievement will be limited and competence development will be thwarted.

He represented the interplay of factors within MST as:

Motivation = Goals x Emotions x Personal Agency Beliefs.

This attempt to unite many complex variables and factors influencing the reasons why individuals select particular actions was significant. Ford considered that a hierarchy of different goal themes could not necessarily be established, given the range of personal, affective and subjective circumstances which result in an individual's action, but that hierarchies of subordinate goals may help individuals in prioritising tasks. As indicated below, it is not clear if his Multiple Systems Theory sufficiently reflects the temporal influence on human motivation: contexts for an individual's behaviour are constantly changing as are the mores and mood- music within which individuals choose their actions. It may be that the best that can be achieved is partial supposition about the numerous possible causes of an individual's choice of actions at any one point in time.

Ford also considered that individuals' choices of goals for themselves might be in part influenced by a personal orientation or appetite for changing, avoiding or maintaining a particular state and that facilitating rather than controlling behaviour was significant in motivating individuals. This latter feature echoed

the findings of Deci and Ryan (1985:31), cited above, whose empirical research working with colleagues internationally identified the importance of encouraging autonomy in learning. This feature is supported by the case study findings reported in Chapter 4: learners enjoyed the autonomy they felt they had in organising their own learning and this motivated them to undertake their own work outside of the classroom and pursue queries with staff (S2014: 4, pilot study, Transcript teachers).

2.3.2. Social learning goals and socio cultural aspects of learner motivation - the importance of the group and of peers

Theorists in the mid twentieth century began to link personality, environmental factors and social factors as important influences on learning behaviour. Values influencing learner behaviour were recognised as an important variable and learners would absorb these values from modelling behaviour within their social groups. Learners would recognise the importance of particular aspects of learning and their alignment with the held values of their families or other influencers. Learners in UTC contexts will inevitably be subject to socio-cultural factors influencing motivation, in the same way as other learners in non-UTC contexts; it is appropriate therefore to mention contributions in this area. However, space constraints within this study prevent anything other than a brief mention.

In the mid 1980's, Bandura (1986) developed social cognitive theory. Within this theory Bandura moved beyond a consideration of intrinsic or extrinsic influences (see below), and focussed on the impact of social factors upon learning and motivation, particularly learning from others by imitation, self-efficacy belief (what the individual believes they can accomplish at a given point in time) and self-regulation (an individual's action to enhance or restrict a particular behaviour in response to stimulus factors). This theory built upon and extended an earlier social learning theory (Rotter, 1954), and stressed the importance of a modelling process within learning motivation. For example, an individual likes and respects a classmate who is good at mathematics and wishes to appear like them because they value the image or achievement of the class peer. There exists a social motive for the individual to learn maths, possibly by trying harder, being more attentive or imitating the behaviour of

the respected classmate to model actions on those of the respected peer. Within Bandura's theory, the individual would also need to believe that they would be capable of imitating and achieving at a similar level. Over the course of time, the individual would evaluate their own progress towards achieving similarity and apply self-regulation to their actions as appropriate. The respected peer has to be credible, and the individual must want to accomplish the modelling and be aware that they derived enjoyment from the action. Bandura included three main interacting features within his theory, which he described as his framework of triadic reciprocity (1986:18): the person (and the social attributes and personality); behaviour; the environment. He believed that all of these aspects interacted, but they might not all assume equal dominance in that an environmental factor might overwhelm the other two elements in particular circumstances. Within the interaction of the three elements of the theory, outcome expectations (what the learner anticipates will happen as a result of particular actions), goals, values and self-efficacy (what the learner believes they can achieve) were all important learner beliefs influencing their motivation. This theory is reflected in the case studies in this enquiry and the expectation of UTC pupils that they will succeed in their goals is documented below in chapter 4 and 5.

Critics of Bandura (Ford, 1992:31) concluded that his range of variables used to describe social-cognitive theory was not yet united in a theory or concept of a whole person action. However, Wigfield and Eccles (2000:69) tested expectancy-value theories, introducing a number of important variables affecting level of achievement expectations and values. These variables derived for example from socio-economic background, race, culture, family background, long term and short term goals of the learner, the importance they attached to particular subjects at different times, the affective responses of the learner, or socialising influences. Their consideration of the impact on the learner of a more holistic range of motivational factors was an important step in the recognition of the complexity of explaining individual motivational determinants.

2.3.3. Extrinsic, intrinsic and interest motivational factors in learning

During the period 1950-1980, behavioural theorists argued that external factors, such as classroom layout, were important in motivating learners, whereas cognitive theorists considered the internal factors relating to an individual, their emotional state and condition and prior learning as significant factors bearing on an individual's motivation and actions. Current research continues to examine both these extrinsic or intrinsic approaches to motivation to the present day. Extrinsic motivational factors may be considered as those environmental, social or political factors, which cause an individual to undertake a particular course of action, defined by Murphy and Alexander (using Whang and Hancock, 1994:306) as 'performing a task to get something outside of the activity itself'. For example in the UTC context, a learner's family may have relocated for employment reasons, obliging the learner to choose a new school environment, or a learner's family may have a strong association with a particular career pathway in a particular location due to employment history and future prospects. The learner's family may therefore seek to transfer an expectation that the career specialism should be maintained by younger generations and encourage the learner to positively view that specialism.

Intrinsic motivational factors may be considered to be those which arise from an individual's own cognitive volition, selected from a range of possible choices of action. Intrinsic motivation is defined by Murphy and Alexander (again using Whang and Hancock, 1994:306) as 'a task performed because it is rewarding in itself'.

The definition proposed by Murphy and Alexander for the category of theories gathered within Interest Motivation depends on whether the motivation is viewed as individual interest motivation; "a deep-seated interest which emerges from one's own history of interactions" (Albin, Benton and Khramtsova, 1996) or whether it is viewed as situational interest; "a transitory, short-lived interest that pertains to an object or event within an immediate situation or context" (Albin, Benton and Khramtsova, 1996).

As Ryan and Deci note (2000:55), intrinsic motivation leads to high quality learning, and is therefore very important to educational practitioners. To follow the family preference example above, a learner's family may have a long

history of employment in the engineering sector and may encourage the learner to pursue this career path. The learner however might decide to reject this extrinsic motivational factor and choose to adopt an internal or intrinsic motivator; perhaps whilst they acknowledge the family history, they nevertheless are more personally interested in computer science and believe that this subject would provide opportunities more aligned to their personal preferences.

As noted above, there are many approaches to intrinsic motivational theories. One approach is considered briefly because of its relevance to the case studies in chapter 4. Self-determination theory (SDT) was developed by Deci and Ryan (1985) as part of intrinsic approaches to motivation.

They asserted (1985:5)

There has been considerable debate over the best way to conceptualise this motivation source (...) intrinsic motivation is based in the organismic needs to be competent and self-determining.

Self-determination theory holds that individuals behave in particular ways to support natural or intrinsic tendencies: to satisfy basic human needs for affiliation; to encourage affinity to a community and engaging in shared practice; to encourage psychological well-being. For Deci and Ryan, three elements were fundamental in SDT: competence; relatedness; autonomy. For example, SDT asserted that individuals must have strong beliefs that they have the autonomy to control factors in their environments and that the belief in the ability to exercise control partly underpinned an individual's motivation for an action – an individual was able to determine what they should do (de Charms, 1968; Harter, 1978; Deci and Ryan, 1985). SDT did not ignore the influence of an individual's needs but proposed that an individual would make decisions on the basis of their accepted strengths and weaknesses (the competency element and the desire to master a task), and preferences and possibilities available about the course of action to determine (the interest in the task, and the importance to the individual -the relatedness of possible courses of action).

Self-Determination theory also had limitations as researchers have pointed out (Schunk, Meece and Pintrich, 2014) in that an individual's actions cannot always be explained by intrinsic motivational factors: an individual could

choose an action they were not interested in because they might feel socially or culturally obliged to do so, as an external motivational or compliance factor. This is illustrated in the transcript comments presented in chapter 4 below. A number of examples are given where learners were strongly encouraged to choose the UTC school because of a family history in the subject specialism. Learner comments record their experiences of enjoyment, choice and autonomy in their learning tasks, reflecting the perspectives of Deci and Ryan (1985:29):

Interest and excitement are central emotions that accompany intrinsic motivation. When highly intrinsically motivated, organisms will be extremely interested in what they are doing.

In the context of the UTC, a learner could be intrinsically interested in mastering the UTC subject specialism because, as learner views below have demonstrated, they gain internal pride and emotional satisfaction from the mastery. Alternatively, they might be motivated extrinsically, again demonstrated below, believing that a qualification in engineering is more likely to help them achieve short-term goals related to finding employment. Their interest motivation might be personal or situational and might change over time so that an individual's interest and motivation in a given topic is a reflection of their aspirations at a particular point in time. This inevitably increases the complexity of analysing causal factors related to learner motivation. The nature of goals themselves, types of responses to set goals and the culture within a classroom as manipulated by the teacher, and the impact of all of these on motivation have been researched extensively (for example in Ames, 1992:1 and Dweck and Leggett 1988:1).

In this section intrinsic and interest motivational theories have been grouped together. This is because there are many overlapping features. In an attempt to distinguish between the two areas, Murphy and Alexander (2000:13 and 200:17) note that intrinsic motivation could be defined as the “interest in the subject material, curiosity, preference for challenge (...) an orientation to master challenging tasks (...) a task rewarding in itself”. Interest motivation, being either situational or individual according to their framework, could be defined (as above) as transient and connected to particular environment in the case of situational, or “interest that reflects a long-term, deep-seated

involvement in a subject” in the case of individual interest (2000:17). Intrinsic motivation could therefore be considered as connected to the desire to achieve a task that is deemed to bring personal fulfilment, whereas interest motivation might not necessarily be linked to task achievement.

As has been indicated above, not all theorists viewed a strong delineation between intrinsic and extrinsic motivational drivers as useful, preferring to think in terms of a combination of the two to explain behaviour. Ryan and Deci (2000:55), recognised the differing influence on behaviour of intrinsic or extrinsic motivational factors and acknowledged the importance of both of these in education contexts:

Educators (...) cannot always rely on intrinsic motivation to foster learning. Frankly speaking, because many of the tasks that educators want their students to perform are not inherently interesting or enjoyable, knowing how to promote more active and volitional (versus passive and controlling) forms of extrinsic motivation becomes an essential strategy for successful teaching.

They were strongly of the view that self-motivation was fundamental in an individual achieving their goals. They asserted that rewards, although commonly existing as a supposed reason for an individual to pursue an activity, particularly a job-role, were not helpful in maintaining effective motivation; an individual’s sense of autonomy and need to experience competence were predominant. Murphy and Alexander note (2000:31) that in relation to extrinsic or intrinsic motivation in education, research indicates that younger children are more intrinsically motivated by innate curiosity, whereas in adolescence, extrinsic motivational factors predominate.

The importance of interest and enjoyment was stressed by Csikszentmihalyi (1991:4) in his theory of Optimal Experience and Flow, which held that individuals can become extremely intrinsically motivated in a task to the point of being lost in the activity to the exclusion of all else when the challenge of an activity is carefully balanced with the capabilities of the individual, neither too easy nor too difficult. Flow theory particularly stressed the importance of

affective or emotional factors pertaining to individuals engaged on tasks, emphasising the importance of the enjoyment factor as a motivator.

2.3.4. Self Schema approaches

Motivational theories stressing the importance of self-concept and self-confidence came to the fore in the early part of this century through the work of Pajares and Schunk (2001; 2002). The definition proposed by Murphy and Alexander (using Pintrich and Schunk, 1996) for their category of self-schema theories is that they ‘refer to personal knowledge about oneself that represents consistent differences about the way in which one perceives and responds to events’. These types of theories ran alongside the development of goal-orientation theories referred to above, and considered the personal self reasons why learners wished to achieve particular outcomes and the processes that they engaged in to succeed in those outcomes (Elliott & Dweck, 1988; Ames and Ames 1989; Ames 1992; Maehr & Midgley, 1991; Nicholls, 1990).

Individuals’ views of their own circumstances and capabilities, and their ability to take or direct action have been considered in a number of more recent motivational theories.

Self-perception and the importance of this in affecting learner motivation have been considered in a number of important works. Attribution theory, championed by Weiner (1972, 1985, 1986) was important in allowing an exploration of how people’s beliefs about themselves and their abilities influenced their motivation and their responses to events in their lives.

Attribution theory holds that individuals seek to understand and master the environment and control their own behaviour. They also seek to find explanations for why particular events happen and influence their lives.

Attribution in an individual’s perception links to events that have already happened. For example, in the context of a UTC, an individual may consider that they didn’t do very well at mathematics GCSE because of poor teaching in a previous school. Psychologically, the individual will be influenced to act as a function of their attributions, for example they may regard any future maths teachers with disproportionate anxiety.

As Attribution theory depends on an individual’s perception of the reasons for their own performance, the likelihood of them being able to achieve success is

also a subjective interpretation, which may be influenced by teacher feedback, personal psychological factors or environmental factors. It is therefore complex to arrive at a consistent predictor of behaviour or outcome for an individual. Schunk, Meece and Pintrich (2014:98) documented a number of inconsistencies arising out of research into Attribution theory. The theory was nevertheless significant in that it shifted a focus onto affective or emotional variables pertaining to individual motivation, which in turn generated further subjectivity and complexity underlying any possible categorisation attempt for consistency.

2.3.5. Motivational theories with particular relevance to UTC learners

The UTC curriculum model is now in its sixth year of delivery, albeit as yet in a very small number of locations. Over the past two years, a number of research projects have begun to explore the nature of the UTC model, its curriculum delivery and the possible influences and impacts upon learner motivation and achievement. I have critically examined below those research studies into UTC currently existing.

Research by Bathmaker and Ingram (2014) looked at the impact of the vocational curriculum of the UTCs on the decision-making and experience of young UTC learners in two case study locations. Their findings (2014:6) indicated a predominance of working class *boys* attracted to the model of the UTC. The reasons for this were twofold: the predominance of STEM subject specialisms of the already existing UTC's in 2014 and the associated gender recruitment bias of boys and the current strong focus of state secondary schools on achieving the maximum possible number of pupils attaining a "good" pass grade at GCSE (grades A*- C). They asserted that this good pass grade focus resulted in neglect of those who were unlikely to achieve this level. These learners, not considered as middle-class high-flyers, were attracted to the UTC model as an opportunity of undertaking a new start in their lives. The motivation for these learners was strongly focussed on the need to improve their views of themselves and their achievements but also reflected their beliefs that they would indeed be able to do this in a UTC setting, reflecting some of the theories on skill mastery, confidence and self-belief as important motivators for learners. The Bathmaker and Ingram research (2014: 7) also identified a

lower number of Black and Minority Ethnic (BME) pupils choosing the UTC model; this is an early finding that may merit further study over time. The findings also noted that UTC's were significantly shaped by policy direction (2014:3), which has been examined further below in section 2.4. The research had the limitation of only being able to examine the relatively few cases of UTC existing in 2014 and the contexts associated with them. However it also identified a need for further work on how government policy shaped institutions, and on the experience of UTC learners, particularly relating to their achievement and career destinations.

The findings of Malpass and Limmer (2013) on learner experiences in UTCs, noted UTC learner perceptions of greater individual progress being achieved as a result of better intrinsic motivation and autonomy in approach to learning, reflecting aspects of SDT. Malpass and Limmer questioned 49 year 10 students in 5 case study UTCs open in 2012, offering an engineering specialism. Learners identified the need for a fresh start (2013:5), the more authentic vocational experience and the culture of learning (2013:7) as important factors contributing to their motivation. Students reported being trusted to undertake their own learning, and experiencing improved self-confidence as a result (2013:12).

A further study (Malpass and Limmer, 2014) examined deep learning and higher attainment in UTCs, comparing the evidence from a sample of UTC learners and a control group of non-UTC learners. Their findings indicated that deep learning was not more prevalent in UTC settings, but that higher intrinsic motivation for learning was present in UTC contexts and that engineering students in the case study UTCs performed better than engineering students in the control non-UTC schools. This finding would need further examination over time as more data on UTC student achievement emerges.

However, a related conference paper on career aspirations and UTC experiences (Acquah, Malpass and Limmer, 2014) noted that the practical work experience placements encouraged by UTCs were positively regarded by learners and that the learner's choice to attend a UTC was linked to perceived career advantage and opportunity, and therefore extrinsically motivated.

Finally, a booklet produced by Women in Science and Engineering (WISE) commissioned by the Royal Academy for Engineering (2014) presented a business and education case, or extrinsic motivators, for attempts to encourage more girls to choose engineering as a subject area and enrol in a UTC and provided a checklist for UTCs to follow in their delivery model. Clearly further follow up work would be needed to see if the checklist had been adopted by any UTCs and what the outcomes revealed.

The existing research has therefore provided some partial hypotheses to examine in the data collection. UTC learners are voluntarily choosing to move to a new unknown school. One might hypothesise that learners dislike their current school, and this could include a number of variables relating to the individual, or that learners are attracted by their perception of a better environment, relating either to the enhanced resources available in a UTC, the greater availability of technology or the opportunity to pursue a subject specialism not available in their current school. Following the Murphy and Alexander classification cited earlier, learners might be setting life improvement goals, learning or career goals. Learners might also be extrinsically motivated by their desire to engage more frequently with employers, with the vision of a stronger career and employment pathway, or by their perception of the different school week and learning style with increased hours and a greater autonomy to organise their own learning (SDT). Their motivation could be reflecting a wish to exercise a mastery goal in learning the designated skill of the UTC, or a performance orientated goal in a desire to improve own achievement compared to peers in a choice of a new location. The learners could have an inbuilt interest or intrinsic, basic need motivation to engage in the specialism and master new learning tasks or an extrinsic motivation, believing that better career rewards would result, or a situational interest in being able to take advantage of the emergence of a UTC in their locality. Finally in terms of the self-schema theme, learners might be motivated by their perceptions of improving attitudes towards themselves resulting from potential increased school enjoyment and success in assignment grades or examinations. They might be motivated by their belief that they can achieve better in the different location. Any or all of these motivational theories and

associated drivers could be relevant for UTC learners and have been tested in the data collection surveys and interviews.

2.3.6. Summary of literature relating to learner motivation in UTCs

As a brief summary of this section, it is clear that researchers over the past fifty years have worked on theories attempting to explain human motivation, particularly in educational settings, from a number of standpoints.

Given the proliferation of evolved theories of motivation and the number of possible approaches and interpretations that can arise, it is tempting to conclude that it is an impossibly challenging task to attempt to define in an over-arching theory why individuals choose a course of action. There is general consensus that basic human needs must be met before an individual can proceed to pursue wishes, aspirations or goals. There is then an aspect of choice or control determining an action. Compliance with social or cultural expectations may influence an individual's choice of actions, as will personal preferences, current feelings or affects, and environmental stimuli.

Environmental circumstances in the form of government education or pedagogical policy directions will also have an influence on the individual, hence their inclusion in this study.

Some researchers particularly in more recent times have stressed the importance of the feel-good factor: individuals are pursuing the satisfaction of wanting to better themselves, and this is a strong motivator. It is also helpful to keep in mind Ford's "ultimate truths" of motivation (1992:85):

an individual's thoughts about desired or undesired goals will inevitably be highly idiosyncratic, very personal and context specific, resulting in the difficulty of attempting to formulate all encompassing theories of motivation and its accompanying components or drivers.

It should also be born in mind that there is always a temporal aspect to an individual's choice of action; because variables cannot be constant over time there is no certainty that an individual will remain constant in their choice of action over a defined time period. Research into the sustaining of motivation and the link to short, medium and long-term individual goals is therefore

significant and relevant to this enquiry. The majority of research into educational motivation goals has been over short time -periods (Schunk, 2000:118). This brief literature review of research into motivational theories using Murphy and Alexander's classification has illustrated the complexity of causal factors influencing an individual's choice of action. There are a very large number of motivational theories documented in the research literature and criticisms have been levelled at most for a failure to fully explain action.

Section 2.4. The links between government policy, curriculum innovation and learner motivation

In this final section of the chapter 2 literature review, I set out how the 3 areas of changing government policy, curriculum innovation and learner motivation in a UTC setting are linked together. Education policy does inevitably influence learner experience and motivation (Freire, 1993:59, Ball, 2008:3) and there is a need to show how learners are influenced by both policy and contextual factors (Braun et al., 2011: 585; Carr, S., 2016:46).

As Keep (2005:1) noted:

After 29 years of reform (...) the easy topics have by now been tackled and all that remains are the intractable problems that reflect the operation of deep-seated vested interests and powerful structural forces.

Intractability was also highlighted in the (2015:8) newly elected Conservative government Treasury policy publication with the continued reinforcement of the view that the UK continues to be hampered in its productivity and economic progress by the lack of technical skills of its people:

The UK's skills weaknesses and failure to grow a serious system of respected employer-led professional and technical qualifications are of such long-standing, and such intractability, that only the most radical action can address them.

Similarly, Hodgson and Spours (2008:95) noted that:

Despite constant policy intervention by successive governments over the last thirty years, vocational learning and the work-based route are still struggling with issues of status, size, quality and role (...) they are

caught in a low-supply, low-status, low-visibility and low-quality syndrome.

The most recent widespread criticisms of the outcomes and impact of vocational curriculum reforms were contained in the 2011 Wolf review. Professor Wolf identified a number of key areas in need of further significant reform. These were listed as: the plethora of low-level vocational units achieved by learners, confirming after 22 years the earlier predictions of Finegold and Soskice (1988:49); the confusing nature of multiple similar qualifications offered by different awarding bodies; the early specialisation of learners with significant numbers subsequently migrating to different specialisms but at the same low level of qualification; the failure of learners to reach basic standards in English and mathematics by the age of 19; the complicated nature of post-16 funding arrangements; the lack of employer involvement in curriculum design.

Despite these criticisms, some authors have documented the significant positive achievements of vocational education policy reforms during the period 1980-2007. Pring et al (2009) attempted to present the positives of curriculum development for the 14-19 phase as a result of their 5 year comprehensive Nuffield Review of 14-19 education, and concluded that much had been achieved including a broader focus on achievement for all, a raising of standards, a focus on personalised learning, greater access to Higher Education and more collaboration between institutions and services at a local authority level. However, they also concluded, “problems stubbornly remain” which are stated as (2009:3):

Low achievement for many; lack of social mobility; constant complaints from employers and others about the standards of those leaving education; absence of good training opportunities and insufficient high-quality jobs that carry prospects of real fulfilment and progress.

As has been documented above, many of these anticipated innovations and well-intentioned interventions were specifically designed and implemented to introduce a curriculum likely to result in increased learner motivation, at least in the minds of ministers and civil servants charged with implementation plans.

However, it seems that there is little evidence of a link between government strategy to achieve excellent vocational education and associated policies and interventions, which do indeed result in increased learner motivation. In fact, lack of learner motivation was barely discernable as a national concern until 2010/11, although it had been raised periodically in research over the thirty years previously as a significant determinant of staying-on rates and consequent higher achievement. There are features in the UTC curriculum model which are innovative and have not been previously tried and tested. They appear at least to have presented an opportunity to achieve a greater link between government strategy and policy implementation and improved learner motivation.

2.4.1. Summary of literature review sections and their relevance to the enquiry, the boundaries in the current literature and the gaps in literature and knowledge relating to UTCs

As documented above, successive governments' disenchantment with achievement and skill levels, motivation and employment readiness of young people led to a focus by the 2010 coalition government during the period 2010-2015 on the permitting of new types of academy schools, such as free schools, studio schools and UTCs. The rationale for these new types of academies was partly to allow parents supposedly greater choice of schools, but also to attempt to address the perceived historical failings of technical education by means of new, mostly specialist, curriculum delivery content and methods. Ministerial reviews pointed to the need for a greater involvement of employers; a number of authors for example Robinson (2001), (and Fullan, Pring and Prensky cited above) had commented particularly on the need to permit greater levels of learner engagement, involvement, choice, responsibility, accountability and creativity.

The UTC model, permitted by government policy, seeks to foster greater motivation through a different type of learning. However, there is a current gap in knowledge as to whether or to what degree the linked elements have been delivered. This research enquiry has therefore sought to determine the degree to which these elements have been implemented in two individual cases, and the possible impact upon learner motivation in those two locations.

Five categories of motivational theories have been used as a framework within which learner views have been collected. This has been informed by the literature in which, as stated above, a number of authors have documented the inter-relatedness of types of motivational theories and the difficulty of evidencing a causal link between any single motivational theory and a learner's action at a point in time.

Learners in this study were not obliged to change school; they had a goal or objective in mind motivating them to take a leap of faith into a largely unknown, untried and untested way of delivering technical education in a new government policy initiative. The enquiry has examined how these learners have reported the impact of their unique education experience, in the hope that new knowledge may be gleaned. It has questioned the motivational drivers for the choice in some depth in an attempt to understand the perspective of the learners, and has also examined if and how their motivation has been sustained. The enquiry has considered the degree to which this latest government initiative has been able to encourage learner motivation with a new curriculum approach to technical, vocational education. Although there is a significant body of literature relating to the use and benefit of technology in learning, there are gaps in the literature relevant to vertical group engagement with learning using extensive ILT, and any potential curriculum or motivational benefit. Group goal setting theory exists in the literature as referred to above, but to date there is no research on group goal setting theory in the unique UTC context where team and group tasks are routine. Similarly, there is a gap in current knowledge as to whether a policy intervention of extensive employer engagement can deliver improved learner motivation and a consequent higher standard of technical or vocational learning.

The methodology of the enquiry described in the next chapter sets out how the approach to and design of the enquiry has examined these aspects and captured the views of learners on them.

Chapter 3 Research Methodology, description of research activities and justification for choice.

A detailed explanation for the methodology and approach adopted is stated in section 3.1 together with an explanation of the timeline of events and sequence of activities in the data collection phases and a table of activities is included in the appendices. A description of methods and activities has been set out in the second section of this chapter together with an explanation of the rationale for interviews undertaken with architects of the model, head teachers of UTCs, teachers, learners, and education policy experts. I have also explained in this section how the specific questions chosen for participants relate to the questions being examined in the thesis, the new government policy direction for UTC explained in section 2.2 and the motivational theories documented in the literature considered in section 2.3. Section 3.3. charts the data collection phase and describes the pilot and the main study exercises and the evaluation and refinement stages. Ethical considerations have been presented in section four, and the final section has evaluated the methodology and approach.

Section 3.1. The methodology for the research and the case study approach

The research methodology chosen to answer the research question is I believe the most appropriate one to analyse how learners experience the UTC model. The methodology supports an examination of its innovative curriculum, to consider aspects of the model which might be linked to high motivation, and which aspects of motivational theory relating to interest, goals, intrinsic or extrinsic factors and the self schema can be observed.

In seeking to determine *how* the UTC curriculum, permitted by government policy, motivates learners and the potential impact of multiple motivational theories underpinning learner motivation, my start point as researcher was the experience of observing unusually highly motivated learners in a UTC location. It was my professional judgment, based on 30 years of experience with young learners in a vocational curriculum setting, which enabled me to form an opinion that the learners I was and would be observing as researcher were highly motivated. The validity of this approach is supported in the literature (Bryman and Burgess, 1994: 32, Yin, 2009:161). The methodology adopted is

one that supports critical investigation of the behaviour manifested by young people experiencing UTC curriculum delivery, and the possible explanations for the levels of motivation and engagement observed. The methodology of the enquiry follows an empirical- analytical interpretive approach, as defined by Connell (1997:128), where reliance is placed on observations of phenomena and the analysis involves the consideration of identified key variables and the possible link between them. I have used an interpretive paradigm because I was looking for evidence of motivation as manifested in learner opinions and descriptions of their experiences. The nature of these observed and recorded phenomena is such that they were amenable to an interpretive approach.

The interpretive approach is particularly relevant in that at no point were learners in the survey required to examine or discuss at length their degree of motivation. I considered that to lead learners to focus on motivation was problematic from an ethical perspective: these young learner's definition or understanding of the meaning of motivation might not have been able to be commonly agreed or accepted by participants in the research. I wanted to test if learners would voluntarily and without any overt prompting, identify increased motivation as an important factor in their learning. The research design envisaged that an interpretation of observed features and comments from learners would, when supported by frequency and triangulation, lead inductively to an accepted view from the data findings through theoretical inference (Silverman, 2014:72) and analytic generalisation (Yin, 2009: 39) that motivational features were indeed being observed on the part of learners.

I have therefore limited my use of the word motivation in the research questions posed to learners (only inviting learners with two years UTC experience to indicate if they felt that motivation was an important feature of their experience) and placed additional reliance on a set of properties which I take to indicate motivation, for example, expressed interest in or enjoyment of specific activities and expressed appreciation of the UTC experience as given in Schunk's (2014:5) definition of motivation in the introduction. These more subtle indicators are necessary because no other similar curriculum models exist in non-UTC schools. Further, the newness of the initiative results in a lack of data or evaluations existing on the UTC model; there is no data bank to

explore, and research literature is at a very early stage. The research design and methodology has taken account of this uniqueness.

I envisaged from the initial observation phase that learners and their learning experiences in UTC academies would be critical in the enquiry. The research methodology required support for the building and development of theory following examination of phenomena in the field. My partial prior assumptions were based on a consideration of theories emerging from early research into the UTC model as described above. I considered therefore that the qualitative methods of questions in focus groups, surveys, direct observation and interviews would best enable me to effectively probe the themes of the research. I started from an assumption that many factors combining together could have caused observed increased learner motivation, as set out in the introduction. I also wanted to be open to any unexpected phenomena emerging, given the uniqueness of the UTC model. Following an examination of the literature, I considered that the case study approach, using suggested hypotheses arising from the early research into UTC and my own observations, was the most suitable to examine what is happening in the UTC context to encourage learner motivation. In order to strengthen the robustness of the study, I have used two different case studies over two successive years in a pilot study and main study with multiple method triangulation including interviews with focus groups, transcript content analysis, and questionnaire surveys with multiple groups as described in detail in the next two sections.

3.2.1. Description and sequence of activity in the pilot study in 2014

The two principal objectives of the pilot study in 2014 were to test the methods selected with a sample group of learners and to begin to test the key themes emerging from the literature.

Early in 2014, I arranged interviews with Lord Baker and the Head of Research at the Baker Dearing Trust. This was to gain as much information as possible about the genesis of the model, how it was being developed and to gain support for the project and for data sharing. Lord Baker, a former Secretary of State for Education, gave a useful account of his enthusiasm for and belief in the importance of providing appropriate vocational and technical education opportunities for 14-19 year olds. He discussed a number of locations where

employers were already collaborating effectively with UTC's. For example at Daventry, the UTC was benefitting from close involvement of a local engineering company with the company apprentices assisting in the project briefs for the learners. At Redditch, the UTC is able to use a whole tube coach donated by Transport for London so that learners can study door- closing operation, an important safety consideration in tube design (Interview transcript 2014:7). The examples described by Lord Baker in his interview strengthened my view that the employer involvement in the UTC curriculum model was extremely significant and merited detailed scrutiny in the data collection phase of the pilot and main study.

Having gained support from the Baker Dearing Trust (BDT) to engage with head teachers in the research study, I then had to persuade individual UTCs to be part of the process. I was seeking UTCs with different subject specialisms and different contextual locations. BDT had suggested a shortlist of locations from the 17 open UTCs where the start of term in September 2013 had gone relatively smoothly, and from the shortlist I chose 4 locations to approach. One location immediately rejected the opportunity stating that their chief priority was to gain a good Ofsted rating and they did not wish any other distractions. One further location initially agreed in the early spring of 2014, but subsequently pulled out one week before the pilot study data collection phase in May 2014, citing pressure of work. The final two shortlisted locations, in different geographical locations and with different contextual circumstances (affluent/disadvantaged) and a mixture of Arts/Science specialisms, agreed to participate and remained committed during the two years of the pilot and main study. In both cases, the head teachers wished to ensure that the research would not interfere with the daily business and priorities of each UTC, that it would be confidential, and that the timing of visits would be at the Head's discretion, and I gave these undertakings.

I then obtained approval for the research from the Ethics Committee of the University of Bath. In May, I briefed the head teachers on the ethical requirements and logistics of the research and they subsequently sought permission from the parents of the learners involved, agreed the timing of the research visits and selected sample cohorts for the focus group interviews and

survey questionnaires with learners and teachers. The research visits took place in the final two locations in June 2014, and the transcriptions and survey analyses were conducted during July and August 2014, with an evaluation of events and outcomes taking place in September 2014. During the pilot study in 2014, I conducted observation of taught activity, four focus groups and questionnaire surveys with 26 learners (22 males, 4 females) in two different locations, focus groups with 11 teachers in two locations, interviews with learners, interviews with teachers, and interviews with two head teachers. I also observed classroom and whole school activities as they were undertaken in collaboration with visiting employers. These activities were undertaken with the aim of determining and qualitatively examining learner views on the reasons for their stated and observed high level of engagement. Nine digital audio recording files were transcribed to produce the pages of text, which formed the data bank for the pilot study, producing a total of 105 pages and 42,668 words of transcript evidence and this was supplemented by notes from a telephone interview with the senior researcher at BDT. The questions used in the learner focus groups and surveys and with BDT staff, head teachers and Teachers are reproduced for information in the appendices at section 8.

As the target group were young people aged 14-19, the research questions posed in the questionnaire were given careful consideration to ensure that the language would be easily comprehensible, and that the questionnaires would not be too long and cause the respondents to lose interest (Cohen, Manion & Morrison, 2007:332). A range of question types was used, with one particular question enabling analysis of a Likert rating scale of responses. The sequencing of questions was carefully planned, with relatively factual questions at the beginning, and some closed questions. A number of open questions towards the end of the surveys allowed respondents to note their own responses to the questions in boxes provided. The questionnaire used in the pilot study and the questions posed in the focus groups were the same for both the year 10 and year 12 participants in 2014. The questions used were specifically designed to link both to the key research questions and to Murphy and Alexander's (2000:8) five areas of motivation arising from the literature review and described in section 2.3 above. All the questionnaires were self-administered in the presence of the researcher as part of the interview process with each

cohort group, in order to maximize the number of responses and allow queries to be raised with the researcher, where a question required further clarification. The disadvantages of this approach are acknowledged in section 3.5 below.

The focus groups were designed to serve as triangulation to the information gathered in the questionnaires and the questions posed to selected respondents were therefore very similar to the written questions asked. Not all the questions posed in the written questionnaire were discussed again with either the year 10 or the year 12 learners in the focus groups, due to time constraints and the need to keep respondents engaged and interested in the activity. The focus group questions concentrated on the key issues of why the learners had been motivated to change school, and what their experience had been like in the first year and why, to attempt triangulation in a group setting of learner individual comments on the questionnaire survey.

Learners participating in the questionnaire survey and focus groups were selected in one case study by the head teacher and in the other, by the Head's PA. In both cases, a random selection was made from the cohort of year 10 and year 12 learners who had returned parental permission forms. In the pilot study the learner participation cohort was predominantly male, reflecting the nature of recruitment in 2014.

A group of teachers in each location participated in a focus group. The teachers self-selected on the basis of those available and willing to participate during the lunch break on the day of my visit. It was not the case that all the participant teachers were strongly in favour of the UTC and in each location dissenters were present in the participant groups. Semi-structured questions were used, combined with open questions to permit free discussion or individual comments. The questions selected for the teacher survey and interviews were designed to elicit views on the nature of the UTC curriculum: how they had adapted as professionals to the delivery challenges; how they as teachers set and monitored learner goals; how they would describe their learners; how they interacted with employers - all to provide triangulation of the learner views.

The head teachers in both locations were interviewed in the pilot study for approximately 90 minutes. A series of semi-structured questions was chosen to

link directly to the research questions set out in the introduction and to link to the key themes emerging from the literature. The views of the head teachers were sought on why they thought the learners had selected the UTC: how they had organised delivery of the specialised curriculum; how they set and promoted a distinctive culture in their UTC; how behaviour management took place; how goals were set with the learners; how employers were involved in the curriculum and assessment activities; the degree to which they considered various aspects of the UTC to be important in motivating the learners.

Section 3.2.2. Evaluation of the pilot phase and lessons learned

The first data collection phase in the summer of 2014 involved focus group interviews with learners, teachers and head teachers and 26 learners and 11 teachers also undertook a questionnaire survey. A number of common themes emerged during the pilot study, with slightly different cultures reflected in the two locations (one reflecting a strong sense of belonging to a family and another reflecting a strong employment focus).

An analysis of the pilot survey results revealed that one question in particular had provided a range of responses often not specific to the question (Do you feel that the UTC encourages you to be competitive with class peers?). I judged on reflection that this was a poorly phrased question in an attempt to determine performance or task mastery orientation in learners. The learners' responses in the pilot study indicated that they did not feel that being the best in the class was in any way important and most responded that they preferred to achieve standards set on the basis of their own goals, indicating a task mastery orientation. Nevertheless, I considered it was important for continuity to retain this question in the main survey, but better phrased, to determine if learner goal preferences continued to reflect a particular orientation.

The review of the methodology and methods used in the pilot study in the autumn of 2014 identified that although teachers had been participants in the pilot study and they were able to add their views as to why they considered learners had selected the UTC, more depth of information and richness of textual comment on learner motivation and the possible causal factors had been gained from the learner participants. I decided to focus only on the learner views during the second year, and use triangulation of method by repeating a

second interview with each of the Head Teachers, during the main study in 2015.

The data from the pilot study research in each location was shared with the head teacher in an overall summary format, to allow an opportunity for comment and correction of the participant adults. The anonymised data collected from the learners was only shared in summary format with the staff in each location, as in each case study some responses were sensitive in nature and there was a need to protect learner identities. All the focus group sessions and interviews were recorded and transcribed on each occasion.

Learner views in the pilot study (data presented below in chapter 4) confirmed that a number of factors assisted and motivated their approach to learning. Amongst these were: the project based curriculum which had a specialised subject focus; the very close monitoring of learner achievement goals by the teachers; the collaborative nature of learning delivery involving a greater degree of independent research; vertical interaction with peers; learning collaboration with teachers and employers. A number of these potential causal factors had been identified as significant in other research (Bathmaker and Ingram, 2014). Two new factors - the mix of collaborative and independent learning and the goal setting in a project-based curriculum delivery – were also cited by learners as important in their experience. A more detailed scrutiny of these new elements was planned into the design of the main study undertaken the following year.

Given the wishes of the head teachers, I planned the pilot study visits to be at the end of the summer term of year 1 operations in each case, when normal activities could be encroached upon more easily to release the sample cohorts. In the event each location organised the schedule to be compliant with ethical requirements. In each location the selection of learner participants was delegated to the organiser, and as the researcher I was concerned that this could introduce an element of bias in that the Heads might naturally want to select committed and positive learners. However, the data collection revealed that each location cohort contained learners who were not wholly enthusiastic about

their first year experience, and were able to recount in a constructive way how they would wish improvements to be made.

In one location, the timetable on the day of the visit was slightly disrupted by the presence of 40 employers assessing a whole school presentation as an activity in one of the project based learning sessions. Selected participants had therefore to fit their interview and questionnaire survey completion around their participation in a learner team presentation. However, this gave me an opportunity to observe employer engagement with the curriculum delivery in that location and I was able to maximise activities during the day visit.

I aimed to secure continued commitment of each UTC involved in the pilot study in order to observe and document progress over a second year and to examine evolving theories from the inferential approach, and there was a risk that each location could decline further participation. I therefore took care to manage the relationship with each of the head teachers at the end of the pilot study phase in year 1. Each Head was provided with a summary report on the pilot study data collection in their location, compliant with ethical guidelines and maintaining confidentiality. The report highlighted positive outcomes from the first year of operation and areas for potential further action and improvement. Each Head chose to share the report with their respective UTC Board of Trustees and each report received favorable feedback from the Heads to the researcher, as having been useful in the organisational development of the individual UTC. Both Heads subsequently agreed to be part of the main study in 2015, with the same caveats as previously expressed regarding minimal disruption to business, plus a further timing of visit consideration bearing in mind the importance to each UTC of securing the best possible examination results.

3.2.3. Testing the key themes emerging from the literature review of motivational theory

I have set out in table 3.2.3 below how each of the 5 main motivational areas arising from the literature review in chapter 2 sub-section 3 was tested in the methodology. The results as discussed in chapters 4 and 5 present the detailed findings.

Table 3.2.3 Link between key motivational theories and testing method used

Theme/theoretical context	Tested by
Learners demonstrate high levels of motivation to learn and in their perception link this to curriculum practice in the UTC	Questionnaire and focus group with class observation of up to 80 learners. Use of 3 different testing activities. High levels of motivation, compared to levels seen in other types of school, defined by opinion of experienced practitioners and observation of learner engagement in activities with minimal distraction
Learner motivation is encouraged by UTC culture (intrinsic motivation, mastery goal orientation and sense of community of practice)	Questionnaire and focus group, learner views as expressed in the questionnaire survey and focus groups, researcher's observations, teachers' and head teachers' views
Learners are motivated by a new start, a subject interest or basic need (intrinsic motivation, interest motivation, self-determination and self-schema theories)	Learner views in questionnaire and head teacher view
Learners are encouraged to set challenging achievement goals and this aids motivation (goal setting theory)	Questionnaire and focus groups of learners and head teacher interview
Learners respond positively to additional UTC teaching hours with improved outcomes (mastery goal orientation)	Questionnaire and focus group, interview with head teacher, Ofsted inspection judgments
Employer engagement has encouraged learner motivation (community of practice, situational interest motivation, future learning and career goal setting theories)	Learner views and head teacher views Interviews with BDT staff
Vertical age interaction has benefitted learner's progress (communities of practice and social learning theories)	Learner views, head teacher views, survey responses
Collaborative engagement in projects with employers has aided learner motivation	Learner views, head teacher views, survey responses and researcher observation.

(social learning and extrinsic motivation theories)	Interviews with BDT staff
Increased learner independence and ability to choose tasks has improved learner motivation (self-determination and self-schema theories)	Learner views, head teacher views, survey and focus group responses
A rigorous approach to goal setting and feedback has improved learner motivation (goal setting, intrinsic and self-determination motivational theories)	Learner views, head teacher views, survey and focus group responses
Extensive use of ILT improves motivation (self-determination/ self-schema theories)	Learner views, survey and focus group responses, observation

3.3.1. Description and sequence of activity in the main study in 2015

During the main study phase of the data collection in July 2015, the same two locations were revisited. Each location now had 4 year group cohorts, years 10, 11, 12 and 13 with permission to recruit up to a total of 600 learners in each location. In 2015, 44 learners (23 males, 21 females) participated in questionnaires and focus group activity. Taking the main study together with the pilot study, 70 learners (25 females, 45 males) completed surveys and were also engaged in focus group activity over the 2- year data collection period representing 14% of total learners in the two case study locations. Four participants took part in both data collection exercises in the two years.

The sequence of activity was broadly similar to that of the pilot study and is set out for information in the appendices at chapter 8. The two case studies were each approached and gave permission for the second visit, distributed parental consent forms to pupils under the age of 18 and planned the schedule. A further ten digital audio files were subsequently transcribed to form the text used in the main study data bank.

Planning for the main study data collection visit took place in liaison with each Head Teacher (or the PA) during the spring of 2015. In the second year of data collection, the main preoccupation was to ensure that no disruption occurred to learner exam preparation, final assignment activity or revision schedules. Both

Head Teachers had alerted me to the fact that the year 11 and 13 cohorts were leavers and my objective of securing maximum participation, ideally of those learners who had already participated in the pilot study, meant that a tension existed over the timing of the data collection visit. One location decided that this tension would be best addressed by doing the data collection in two visits, as indicated below, once with the year 11 and year 13 leavers, before study leave arrangements applied, and a second visit in July with those learners remaining in years 10 and 12.

In 2015, both case study UTCs were also preoccupied with securing the best possible examination achievement for their year 11 and year 13 cohorts and ensuring that nothing would detract from this. There was also a discernable pressure conveyed to me by each Head Teacher to make sure that everything would go well with the anticipated Ofsted inspections. Timing of the data collection visits to each case study was therefore given careful consideration by each Head Teacher to balance any tensions arising. In the 2015 main study, one location opted to conduct all questionnaires and focus groups with the 4 year-group cohorts and the Head Teacher on the same day in late June (case study S). The other case study opted for a first visit to interview potential leavers in early May, (year 11 and year 13 cohort) and a second follow up visit in early July to repeat the surveys and focus groups with the year 10 and 12 learners and interview the Head Teacher.

The results from the pilot study in 2014 had already indicated a number of factors that were important to learners and referred to above. In the 2015 main study I wanted to get more information from the learners who had experienced two years of the UTC curriculum model (the year 11 and year 13 cohorts). A rank order question was introduced for those learners who had experienced two years in the UTC, to ask participants to rank in order those features (identified in the previous year's pilot study) that remained very important to them in their two- year learning experience.

In the case of the 2015 year 10 and year 12 cohorts, I wanted to test if these learners with 1 year of UTC experience would acknowledge a recognised model of high impact learning as present in the UTC curriculum delivery

model. I therefore decided specifically to test for learner perceived presence and significance of Prensky's 10 measures of high impact, as defined in section 2.2. above, in a Likert scale question. The research associated with Prensky's model indicates high resultant motivation on the part of learners and increased motivation and achievement when they are present, and I considered this justified the variation introduced into the questions for the year 10 and year 12 cohorts; it was hoped that richer explanatory data would result. Again the actual questions used are included in the appendices at section 8 for information.

Following review and analysis of the pilot study, I decided that questions to the Head Teachers in the main study in 2015 would seek richer, more specific contextual information, much in the same way as with the learner surveys. The questions reflected the need to examine if learner motivation had remained high, the causal factors for this in the opinion of the Heads, the nature of goal setting for the learners, an examination of the perceived value added for learners of studying in the UTC model, and a view on the likely achievement of learners in the UTC model, compared to national benchmarks.

3.3.2 Evaluation of the main study and lessons learned

In the main study, as indicated above, the timing of the research data collection visits had been challenging, given the preoccupations of the Head Teachers in the second year of the study as described.

In practice in one location this resulted in a minority (25%) of learner participants in 2015 being interviewed in a period of possible high anxiety in the location that opted for a first visit in May. As a researcher, I was concerned that the pressures on the learners in early May might have influenced the learner views captured during that time period. I did not of course attempt to examine this further on the day of the visit, but I consider with reflection that it could be inferred, given that exam preparation and revision were in full swing for those year 11 and 13 cohorts. Several examples of learner anxiety were expressed in the written surveys and recorded in the interviews. The anxieties captured from this 25% of 2015 participants reflected their concern with organisational matters that, in the opinion of the learners, might have had a negative impact on their potential examination results. The learners

interviewed in June (75% of 2015 participants) did not express similar organisational concerns to those voiced by the early May participants. However, the later date of the visit resulted in significant non-attendance of selected participants in the year 11 cohort in that location, with a number of participants contacting the UTC on the data collection day to advise that they were no longer able to attend.

The other location took the decision to schedule the data collection visit for all learners during a study leave period, when the learners were under no obligation to attend school during my visit to participate in the research. Those learners who did attend in late June had already finished their examinations or had submitted all due coursework. However, it is considered that voluntary attendance might have significantly reduced the numbers participating.

A further complication arose during the main study data collection visits. In one location the researcher received a phone call early on the day of the data collection visit from the Head Teacher requesting a reschedule, and this was of course accommodated. It is not possible to say how this may have affected attendance or willingness to participate on the rescheduled visit day, other than to note that one cohort on the rescheduled day was significantly under represented and a subsequent analysis of data from this cohort proved challenging. Of the forty-four 2015 main study participants in both locations, only four had taken part in the pilot study. It could be argued that there are advantages and disadvantages to this, but the scope of this enquiry prevents further speculation.

The pilot study analysis had informed the planning and methods used in the surveys designed for the main study in 2015, but the interpretive framework of analysis also allowed a number of areas to be newly researched. Two questions in the main study were added at a late stage in the planning: the differentiated questionnaire for different year groups in the study with an amended ranking format to allow for a greater focus on previously suggested possible causal factors, and; a question to enable a detailed focus on Prensky's measures for learning impact as perceived by the learners. Firstly, the idea of using a differentiated questionnaire for the year 11 and year 13 learners, (those who had experienced a longer two -year stay in the UTC) arose when I was

reviewing the pilot study questionnaire responses ready for the main study visit, and was supported by continued examination of the literature on methodology and method during the period intervening between the pilot study and the main study. I felt that the survey questionnaire for learners needed more detailed sections to make maximum use of the year 11 and year 13 learners' extended experience of the UTC curriculum delivery of project based learning in vertical groups, the personal goal setting and how this had worked in practice and their experience of engagement with employers. Secondly, I had been attracted to using Prensky's 10 impact measures as explained above in section 2.2 in the 2015 main study as I felt it would be useful to test the perceptions of the UTC learners against a well researched model of features of curriculum impact for learners, to offer a comparison with an external benchmark.

The variation of differential data collection method by length of UTC experience of learners in the learner survey in the main study may have given rise to richer textual commentary and learner perceptions. However, it also had the disadvantage of having been experienced by a smaller number of learner participants during a single year of data collection, and could only therefore serve as a pointer for further research.

3. 4. Ethical Considerations

BERA guidelines have been adhered to and the work has required support from the Baker Dearing Trust, from individual UTC's and the necessary permissions and commitments from participants and parents where appropriate. Ethical approval to undertake the research with learners was gained from the Ethics committee of the University of Bath prior to undertaking the pilot survey data collection.

A number of aspects of the proposed research methods required careful consideration. Firstly, the research would include questionnaires and focus groups with learners under the age of 18 in an academy school setting. It was important that permission was gained from the establishment to carry out the research and also that the intended learner participants and their parents/carers were briefed on the nature of the proposed activity and the purpose. I believe

that the strategies used as described above effectively achieved the briefing and allowed informed consent to participate to be given. In each UTC, staff responsible for administration asked questions for clarification when they were unsure of what was required. Further, in each meeting, participants were advised by the researcher both verbally and in writing at the start of the discussion of the nature of the research, the confidentiality planned, and their option to withdraw at any time. I consider that the learners participating in the data collection fully understood this, and at no time did any learner or other participant ask to withdraw.

Secondly, some aspects of participant agreement were given careful consideration. Whilst the transcripts of interviews with BDT staff and with the head teachers of the UTCs were shared and agreed with the interviewees, I did not require learners to agree the transcripts of the focus group sessions. I believe that this would have been difficult to organise logistically and would have represented an unnecessary burden on learner participant's time, given the caveats expressed by the head teachers.

Thirdly, the involvement of the Baker Dearing Trust (BDT) at the planning stage of the research was necessary to secure cooperation with data and information sharing. However, I was mindful that the mission of BDT is to promote a positive image of the UTC initiative, and I took care that no undue influence was exercised. As the researcher, I took the final choice of which UTC locations to approach to participate in the research, and complied with the confidentiality required by BDT. Following the pilot study in 2014 I shared a report of the early findings with the lead research officer of BDT. The report was prepared in the first instance for the head teacher of each UTC as a summary of pilot study findings in their school. Each head teacher had accepted the identified strengths and areas for development and had consented to the report also being shared with BDT.

Finally, although each head teacher conveyed a sense of pressure at being in a new type of academy setting with a need to demonstrate good results, at no time did I feel that they tried to influence any of the potential findings. Both

were very supportive and constructive in accepting of any criticism emerging from learners.

3.5. Evaluation of the research methodology

As the research progressed over time, I was able to observe young people undertaking learning activities in an engaged and motivated way in a two UTC settings in different locations. On each occasion I observed high quality learning and collaboration between 14 year olds and 18 year olds engaged in the same project activity with little or no distraction from purpose. However, the research methodology and methods selected had to be able to permit resolution of a number of challenging methodological issues during the data gathering phases of the research.

3.5.1. Bias of the researcher

I was aware that I had chosen the UTC research enquiry because I had been impressed by what I had observed on an initial open day visit, and wanted to investigate further. Potential bias and subjective influence of the researcher has been commented upon widely in the literature (Cohen, Manion and Morrison, 2007:469). It was very important therefore that I maintained an open mind on the quality of activities in the case study locations. For this reason, I selected two case studies, neither of which was known to me, and used a sample of teachers in the pilot study and head teachers in the pilot and main studies in each location to triangulate emerging findings from learner focus groups and questionnaire surveys. I was also mindful that the head teachers were not impartial, and keen to present the best possible picture of their schools. Nevertheless, content analysis of the transcripts reveals honesty in acknowledging where progress needs to continue.

3.5.2. Validity of methodology and methods, validity of information gained

There is a substantial amount of literature both critical and supportive of methods used in qualitative studies. Learner interviews are a predominant feature of this enquiry, as they are in many qualitative studies, and a number of criticisms exist of interviews as a research method. For example, Hammersley notes (2003: 119) that interviews have come to be regarded sceptically, with an assumption that interviewees may only say what they want to convey, not the

reality, and therefore caution must be exercised with the interpretation of interviews. For this reason all interviews and focus groups were recorded and transcribed and the collected media files are available for scrutiny. I would assert therefore that there is a high degree of internal validity in the research. I also considered filming the focus groups, but decided that this might be problematic in that I was dealing with young adolescents who can be self-conscious and I did not want the novelty of the filming as a process to detract from careful thought and serious consideration on the part of the participants.

The survey questionnaires were self administered in the presence of the researcher, but I do not believe that this adversely impacted in any way upon the collection of responses in the survey. In fact it was beneficial: on a number of occasions learners completing the questionnaires asked questions about the format or sought to check their understanding, and the researcher was able to provide an immediate response. Great care was taken to avoid a patronising aspect to the questions and on the whole there was a high degree of consistency in learner responses in the focus groups. Where a learner did disagree with a peer opinion on a couple of occasions, they felt fully able to state this, as is recorded in the transcripts.

In terms of external validity of the research, samples of learners were selected within the two case studies. Further over the two-year period, the two case studies selected emerged as very successful examples in terms of their Ofsted ratings and as evaluated by the Department for Education. In such a selective example, it is not clear how representative these two case studies have been of the general cohort of UTC learners, and a considerable amount of further research and data analyses would need to be considered.

3.5.3. Pre testing of survey questions and amended survey questions

As indicated above, the questions in the pilot survey were very well responded to with one exception as related. A pre-test phase could have been considered in the research design in that the question could have theoretically been rehearsed with a group of similar age adolescents. However, given that any pre-test with non-UTC participants would not have been replicating the full contextual circumstances, because only one annual opportunity was available

to collect the data in the UTCs, it is difficult to argue with certainty that this would have been beneficial.

Furthermore, given that two new survey questions were introduced into the main study at a late stage, there was no opportunity to test these in a pilot survey.

3.5.4. Reliability of data collected

Reliability of the data collected could be defined as the extent to which a test would yield the same results on repeated occasions. The interpretive approach assumes that the social world is always changing and that replication would be in essence problematic. It is not clear therefore that similar results would be produced, even though I believe that the methodology and methods could be replicated.

The purpose of the research enquiry was to construct theories as to why highly motivated learners would have been observed in 2 UTC settings. It was not specifically to test the theory that a project-based, or employer-dependent programme could result in higher motivation of learners. I have attempted to strengthen reliability of the data collected by describing the research activities as clearly as possible and being transparent about the data analysis methods and why the results might give rise to certain interpretations (Silverman, 2014:84).

Repeated data collection from identified groups has clearly not occurred within the scope of this research enquiry: it would have needed a larger number of UTCs within a sample to test the reliability of any emerging theories, but that should not be taken to mean that the emerging theories are not worth further examination. The collected data has been codified as far as possible by theme, in order to pave the way for more extensive research.

3.5.5 Data Analysis

As seventy learners participated in this study where qualitative interviews and focus groups were used, I had planned to analyse the textual content of the transcripts of the focus groups using Nvivo software to cover areas where unstructured responses had been collected. The first analysis from the pilot study revealed that one of the most frequent words used by participants was

‘like’. This reflected the pattern of speech amongst young people currently; for example, ‘I told my teacher I was *like* fed up with maths and he *like* said well, ...’. I therefore considered the validity of editing the transcripts to remove words extraneous to meaning, but subsequently decided that this would corrupt the data. In the event I continued to code the transcript evidence into Nvivo, and this proved helpful to sort the significant volume of transcript text into key themes, which could then be examined more effectively. I had also planned to have sufficient learner participants in the research to be able to consider the use of quantitative analysis of the survey response data to support robustness and validity. However, given that the final number of participants was less than one hundred, analysis methods were constrained. The small numbers in each year group sample also inevitably limited the information derived from the questionnaires produced by each cohort of learners attending the sessions, and this was disappointing.

With the benefit of hindsight having spent three years on the research, it might have been preferable to limit the scope of the study further. The inclusion of questionnaire comments in addition to focus group interviews produced a large volume of data, which could only in the event be analysed in a perfunctory way due to the small numbers of participants in some cohorts referred to above. Further, where learners were invited to write explanatory comments, this did not for the most part happen. The quality of written input from learners was minimal, most frequently one-word answers or short incomplete sentences, which lacked clarity. On reflection I considered that learners gave higher quality responses verbally in the focus groups because they found this easier than having to reflect and write their thoughts and views. Although serving to triangulate the findings of the focus group interviews, the questionnaire information did not really add further insights, and it might have been better to limit the data collection to the qualitative aspects of the focus group process. For this reason, the analysis which follows in chapter 4 is largely qualitative in nature and predominantly taken from the focus group recordings.

Chapter 4 The UTC Case Studies and findings

The first and second sections in this chapter describe the contextual settings of the two examples chosen together with relevant circumstances to date. Each section gives details of the research findings in each location during the pilot study and main study phase using predominantly the transcripts from the focus groups but occasionally supported by findings from the questionnaire survey results. The third section presents the content of the transcript findings from the focus groups conducted in each of the case studies and the fourth section sets out a brief tabular analysis of some of the combined questionnaire data from the pilot and main studies, split by learners having one year of experience and learners completing two years. The final section considers the overall findings and summarises the perceived impact of the model upon learners and learning to date.

The interpretive analytic strategy adopted is one of comparing findings against the partial hypotheses generated from earlier research and stated in the introduction in chapter one, with the addition of others generated from the researcher's direct observation. These partially formed hypotheses have been augmented as the data collection and analysis has advanced over the two -year period. A number of questions have therefore been posed in the sections relative to each of the UTCs during the pilot study and main study. The research has attempted to determine if there is evidence of a collaborative curriculum delivery model that disproportionately motivates and inspires. Where this is perceived to be the case, the research has tried to identify possible causal factors, set within a framework of categories of motivational theory. The research has examined if learners do indeed demonstrate high levels of satisfaction with their learning experience, a 'thirst for knowledge' as Ofsted describe (2015:55) and a view that they have benefitted from their UTC experience. Throughout the first and second sections of this chapter, I have cross -referenced learner views to the evidence base.

Section 4.1 Case study R context and pilot study findings

UTC R opened in September 2013, with a focus on Computer Science and Engineering as its specialisms. Key employer supporters and sponsors are

listed on UTC R website as including Microsoft, Cisco, Network Rail, Thames Water and an extensive range of local companies supporting specialisms. The University of R and Activate Learning, a group incorporating R College of Further Education are co sponsors of the project. When full, the UTC expects to have 600 learners on roll. This UTC is the first UTC to achieve an Outstanding grade in every category in Ofsted inspection.

4.1.1. Results of the pilot study in 2014 with year 10 and year 12 learners

Summary of findings

Interviews with staff and students and the written questionnaires submitted presented an enthusiastic and positive picture of the developing UTC. Learners in this location were motivated to apply because of a perception of better prospects (R16, R14), the specialism (R17) and the employer partners (R13). The year 10 learners in particular were extremely positive about their experiences in the first year, commending staff for imaginative input to enhance the curriculum (R15, R18, R19) and appreciating the work done together with the older year 12 learners (R14, R16). The year 10 learners also had comments to make about affective aspects, with two relating the experience of knowing that they could do better and wanting to do so (R13, R16). Learners indicated a wish to try the specialism (R17), the attraction of more independent learning (R14, R15) and another three learners indicated that they wanted to achieve their career or personal goals (R14, R19). Learners stated that help from teachers (R13), the high quality of teaching (R18), the variety of work (R15), the better resources (R24, R25), the industry partners (R26) and improved opportunities (R17, R18, R20) had been important factors in their first year experience.

Interestingly, a minority view from the staff group presenting negative opinions about the new curriculum model, particularly the strong presence of employer projects (Teachers H, I) was reflected in three of the year 10 group on the potential distractions, as they saw it, of the integrated projects within the curriculum (R16, R17, R18). Learners indicated that they also wanted more independent learning time (R15), improved communication (R13) and an awareness that all learners should contribute to project tasks (R14).

Some minor start-up difficulties were highlighted by the year 12 cohort, who included in their feedback some suggestions on improving planning of delivery. These comments were expressed constructively by learners in a way designed to focus on improving the experience of future cohorts "it's still not quite perfect yet, then again nothing is and especially not in the first year" (R20). There was an expectation of similarly enjoying the next year to come (R20, R24, R25, R26). When invited to comment on aspects of their year's experience that they would like to change, the year 12 cohort surveyed did not present any reservations about working with employers and learners clearly enjoyed their project work (R21, R25, R26), albeit suggesting an amended timescale (R21, R26). The year 12 learners expressed some frustration with the restrictive IT systems (R20, R26) and understood that controlling behavior of year 10 and year 12 learners working on the same project task could present a challenge for the teachers (R20, R26). Other negatives voiced were around the sanction of detention for lateness (R20) or what were described as minor hiccups (R24, R26). One male learner indicated they would have liked more gender diversity (R25) and another voiced the view that he perceived teachers to be commuting a great distance to work in the school and that this had caused turnover (R24). One year 12 learner appreciated the greater degree of independent research required by the learning style of the UTC (R23) and others referred to greater opportunities to achieve career goals (R24, 26).

The staff indicated that the opportunity to use their subject specialism to a greater degree had attracted them to apply for a post in a UTC (teachers E, F, H and I) and they were as a majority very enthusiastic about their year (G, H, and I). They were also balanced and honest about the challenges and hard work required in running and managing a curriculum seeking to integrate extensive employer and work based opportunities (G and I). They described a strong target setting focus with learners (teachers G and I). The head teacher evidenced the personal vision, clarity of purpose and high level of determination and commitment needed to lead such an organization (Transcript HT R 2014:1). The views presented by the head teacher reflected the commitment to a particular ethos and way of working. There was a strong sense of working on an exciting new venture and determination to see it succeed and for it to be a rewarding journey in progress. One of the most

striking features was the staff focus on the individual and the sense of creating a feeling of belonging for the students, of feeling part of a wider group, or family, as more than one of the learners described it (R23, R25). There was support for the motivational aspects of the practical nature of the curriculum (Teachers F and I), and a very high degree of employer involvement in assessment activities with the learners in the school (teacher I) and as observed by the researcher on the visit days (researcher's journal, appendix 8.10).

In the pilot study in location R therefore a number of links to motivational theories were discerned. The strong focus on creating a sense of belonging, or affiliation with shared purpose and values reflects Self – determination theory. The high degree of employer involvement is reflective of extrinsic motivational theories. Learning from others reflects Lave and Wenger's described benefits of communities of practice as set out in chapter 2.2.2 above. Learner autonomy and independence in learning as described in the learners' comments indicates the perceived presence of these factors, cited in Chapter 2.2.3 above (Prensky, 2011) as positively contributing to high impact learning.

Section 4.2 Case study S context and pilot study findings

UTC S opened in September 2013, with a focus on Engineering and Creative Digital Media as its specialisms. Key employer supporters and sponsors include Rolls Royce, Sero, Tata Steel, Siemens, the BBC and an extensive range of local companies supporting both specialisms. The S University and S College of Further Education are co sponsors of the project. When full this UTC also expects to have 600 learners on roll and was recently graded Good in all areas by Ofsted.

4.2.1. Results of the pilot study in 2014 with year 10 and year 12 learners.

Summary of findings

Interviews with staff and students in this location also presented a positive picture of the developing UTC in its first year of operation. One year 10 learner indicated appreciation of the small class size (S1) and another of the school having a more practical and personal focus (S4). Comprehensive student support was spoken highly of (S1) and learners had been attracted to apply to the school because of a feeling that it would offer them the opportunity to achieve better grades (S3, S1). There was a sense of a very clear focus from the

learners on achieving their career or personal goals (S1, S3, S4), building self-confidence (S2) and learners spoke of high expectations from school staff, which they considered to be positive (S3, S1). One learner described this as learners being dedicated to learning in the UTC “that helps you learn so it makes you feel better” (S4) and another commented positively on learning to a greater degree from peers in the UTC (S5). Invited to comment on what they would like to change, the year 10 learners requested more locker space (S2, S4) and to change some of the teachers (S3) and one spoke about a disruptive pupil (S3).

In this location, the year 12 learners described being attracted to apply because of the Engineering specialism of the UTC (S6, S8, S10, S12), being able to work with companies (S6, S11, S12) and the parental support for the early career specialism (S7). The year 12 learners had enjoyed working with companies in their first year (S7, S8), the staff (S7, S8, S11) and the equipment and resources available (S8). The learners praised the support received from teachers (S6) and also appreciated the benefits of smaller class sizes (S6), “it makes you set higher goals” (S12), with 5 other learners commenting specifically on goal-setting as a positive feature “coming here has made me want to do well in life” (S4). Learners also commented on the greater degree of independent learning expected (S7, S10, S11). Minor start up difficulties highlighted by the year 12 cohort included late arrival of ID cards (S11) and IT equipment (S12), for more sixth form space (S9) and more efficient planning of employer visits (S11).

The staff were enthusiastic about their first year in a UTC, describing the learners as very motivated (teachers A and D), whilst also being balanced and honest about the challenges “I think as well we are all honest and we are all able to say at this stage, well we don’t know everything” (Teacher C). Teachers also identified the hard work required “A kid will be on the CAD/CAM for ever, you have to prise them out at 5 o’clock, 6 o’clock because they really enjoy it....we push them fairly hard...it’s mostly about enjoyment and because they are enjoying it, they are achieving” (Teacher A, 2014). The head teacher (HTS, 2014:1) again evidenced the personal vision, clarity of purpose and high level of determination and commitment needed to lead a successful UTC

together with a passion for making the UTC benefit a relatively deprived inner city area:

We were determined we were not going to dilute and what we wanted was to be something very unique that was a really exciting place to be at. So what we have tried to do is create an institution that was highly skills-based, is very employer facing, is holistic and sees the learner as a whole.

The views of learners in this location indicated that help from teachers, good teaching, strong employer links, the engineering specialism and high expectations were important to them. Not all learners were fulsome in their praise with one commenting that the experience had been “all right” (S7), but no learners indicated either in the questionnaire survey or the focus groups in the pilot study in 2014 that they regretted their choice to move school.

Learner views from both locations in the pilot study phase partly reflected earlier findings in the literature as indicated in chapter 2.3. There were learners who had moved school because of the attraction of the subject specialism, which was available in greater depth at the UTC. A number of learners indicated that they had an eye on future employment and career prospects. Learners spoke of improved teaching and better support.

The teacher comments above on the enjoyment of learners engaged in perceived worthwhile and interesting task reflects features of intrinsic motivational theory described in chapter 2.3.3 above. The Head Teacher’s determination to instil a culture with frequent employer presence is important in creating the school in accordance with BDT’s stated aspirations. It also might link in learners’ perceptions to a very visible manifestation of their future careers or employment prospects, (identified as a strong motivator in earlier UTC research) and therefore might be argued as supporting their goal-setting or extrinsic motivational theories.

Some findings from the pilot study as referred to above also indicated new areas for research: the learners’ positive comments about the collaborative, peer learning on projects across year groups; the experience of more realistic employer-set projects, and, the greater independent learning style of the UTC as it was described by learners. Two of these features (vertical age

collaborative learning and independent learning) had not emerged from the existing literature on UTCs as discussed in chapter 2.3, but were subsequently tested with the additional focus group questions in the main study during 2015. In particular, the independent learning style was tested with a question modelled on Prensky's (2011) 10 impact features for learning as described in chapter 2.2.3. and section 4.4.2. below.

4.3. Survey and interview analysis, pilot study 2014 and main study 2015

In the next two sections, I have presented aspects of the combined data sets from the learner, teacher and head teacher questionnaires and focus group transcripts from both years of the data collection. Over the two- year period I have surveyed 70 UTC learners and interviewed focus groups, 12 teachers and two head teachers in two locations. I have also been fortunate to interview architects of the model at BDT to examine the motivational aspects of the UTC curriculum delivery model. The qualitative approach has generated questionnaire, survey and interview transcript evidence of some 197 pages and 80,000 words to date and offers a rich insight into young learners' views of their UTC experience.

4.3.1. Content analysis of the 2014 and 2015 focus group transcripts from both locations using Nvivo

All the focus group transcripts from 2014 and 2015 were uploaded and coded into the NVivo software package according to theme of the response. This process proved extremely helpful in quickly identifying learner transcript comments by theme over a broad evidence base. The themes referred to in the introduction and the research enquiry questions formed the framework for coding the responses and these were augmented with new themes emerging as identified by the respondents. An analysis of each of the resulting key themes identified is presented below.

4.3.2. Comments relating to the 5 types of motivational theory.

In this section I have grouped together comments that reflect different aspects of motivational theory as described in chapter 2.3.

4.3.2.1. Goal or target setting

A large number of comments were captured on the importance of goal setting in the UTC model. Of course, all schools set goals for learners. The important finding in this research is that the UTC model encourages goal setting by learners and teachers to a much greater degree. The head teachers' and teachers' comments indicated their proactive stance in setting goals, sometimes on the basis of each individual piece of work for learners (2014, teacher transcript R, teachers G, I).

Monitoring of learner progress to achieve goals is also much more rigorous than one would normally expect; as indicated by Ofsted in their inspection judgment of UTCR:

Leaders set challenging targets for all students. Progress towards these targets is scrupulously and rigorously monitored. (2015:6)

Learners confirmed that they experienced goal setting to a greater degree in the UTC than in their previous school, and a number of comments reflected the fact that this was viewed by learners as a factor which helped them to achieve better grades. Learner comments as included below, specifically identified goal setting in the UTC as motivational.

HT:...in project times, we talk to them about what they want to achieve in the next project ...do you want to improve presentation skills? Do you want to improve your technical skills..or what do you want to improve in this next part?

R16. I am motivated a lot more to set goals in this school (...) there is more freedom to set your own goals.

R21. Yeah um I told my teachers all my original goals and they said no, you can achieve a lot better, so I was kind of encouraged to aim higher than what I originally thought I would be doing...(This student subsequently achieved 9 A* at GCSE)

R104: Yes, I think you really are encouraged to achieve higher here. For example, in my old school, if you didn't fail, that was a good thing. It was a pass in your eyes. But here, in certain subjects, if I get anything below an A, I sort of hate myself! (laughter)

R106: I agree with 104, because in my old school, getting G's was a good thing! So if you get like a D here, the teachers help you.

It could be argued that encouraging a learner to aim for a C grade rather than a D grade would be happening in all schools as a matter of course. I think the significance of these comments from learners is that the learners themselves spoke of the target setting and encouragement as being significantly more robust than they themselves had experienced in a previous school.

The researcher's own professional experience as an Ofsted Inspector of schools also provided a relevant framework of reference to support this view.

4.3.2.2. Intrinsic motivation

Given the definition of intrinsic motivation above in chapter 2.3 (a motivation derived from within individuals, similar to a basic need) it was not always possible to identify or categorise learner comments that could be reasonably interpreted as reflecting their inner needs and desires. The learner comment in the text box below does however illustrate two important points. Firstly, this learner has been motivated to join the UTC to a sufficient degree to be able to persuade reluctant parents and secondly, the learner expresses the pride he feels in having done something well at the UTC and the happiness resulting from his new satisfaction with the learning environment. These two sentiments might reasonably be argued as illustrative of intrinsic motivation.

S3 My Mum and Dad were unsure about it at the start cos um it were like a big change and you're going to a new school and meeting new people, but after a while when I did join and they started to see my grades going up and em I was working a lot harder and coming home happy and being proud of what I've done, they started to settle down a bit.

Other sections of this chapter include learner comments that reflect their stated enjoyment and enthusiasm, presented in the literature in chapter 2.3 as indicators of intrinsic motivation. The fact that learners were prepared to spend many hours using the CAD/CAM resources, or that they were repeatedly asking teachers to explain challenging new material or concepts could also

reasonably be argued to be indicators of intrinsic motivation, and particularly SDT, because the learners were enjoying their interest in the subjects being taught and valuing them. Learners were seeking to master new tasks to satisfy an internal driver and once achieved, this has encouraged raised self-esteem.

A number of learners in the focus groups reflected on how they felt about taking responsibility for their learning in the UTC, which could reasonably be viewed as perceptions emanating from intrinsic motivational drivers where learners autonomously get on with tasks because they are self-motivated.

R52: I don't feel that many members of staff have helped to keep me motivated, it's always been stuff that I have done myself. It's been mostly self-motivation and just get on doing stuff on my own, not depending on any of the teachers.

R53: Yes I do second that, like some teachers do a good job of inspiring, but it's almost like ..it's your responsibility, so you learn, you have to learn quite quickly that...you almost want it for yourself.

S84: The teachers do help (...) but you can't just rely on the teachers, it's personal motivation as well.

4.3.2.3. Extrinsic motivation

Earlier research cited above in 2.3.5. found that extrinsic motivation was an important factor in learners choosing a UTC. Learners had identified benefits such as closer links with employers and a perception of better job prospects as prime reasons for their choice, as opposed to an internal interest, goal or self-need. These earlier findings were also reflected in this study with a number of learners referring to the perceived improved job prospects resulting from closer contact with employers.

R13: Well, the partners that the school has, that really helped my parents to influence me to join, that was my motivation.

R24: I was thinking about the partners as well, obviously maybe at the end of the two years I might be able to get employed by one of the partners because obviously you have been a bit more involved with them, (...) I thought that the professional qualifications that were available here werewould be quite useful to have for employment for the future

R21: Well it's. Just two words...the future... Because I have been able to broaden the respects of what I can do and I have learned a lot, I have also like met with people, our sponsors, on work experience placements and you just go there if you need a job

S3: Also school said that if we meet us grades we get a guaranteed interview for an apprenticeship, and that makes me determined to get somewhere, because I would like to do that.

Learner comments above reflect the importance attached to 'the future' as R.21 describes it. The attraction of forging a strong link with potential future employers is an extrinsic motivational factor of some significance. Learners in their comments repeatedly stressed the importance of strong employer presence in the UTC context.

4.3.2.4. Interest motivation

Many learners talked about their enjoyment of the specialist resources and their interest in the subject specialism. Funding allocated to the establishment of a UTC allows for £100,000 of computing equipment and state of the art subject specialist equipment, all located in a new, or newly converted building and designed to be inspirational and motivational. The curriculum delivery model and the strong links with university and industry partners are also intended to motivate learners.

S83:I enjoy the specialist subject because I have done a fair bit of engineering before, but the whole machining side of it, I have never seen technology like it and the fact that we are on it on a daily basis, is good.

S82: Erm, just being on the machines and ...because not many people from an ordinary school, they have never been on a machine like a lathe. So like if we have experience and then you have an advantage over it, and I think that's like very important. So when you go for a job interview, they will be more interested in you.

HT comment: They are just really motivated

(DD: What causes that?)

I think it's the fact that their curriculum is right for them and I really strongly believe that we are the right environment for most of these students here and they have chosen it because we are the right

environment and I think that is sorely lacking in many mainstream schools.

Learner comments also reflected their interest motivation (as defined in chapter 2.3) for choosing the UTC.

R100: Well, I felt like it would be a good experience for me because I came to the induction day and I liked it. It just had the specialisms that I wanted to do and things...that my other school didn't provide for me.

DD: Ok, can you give me an example of a project that you have enjoyed?

S95: Well for me it was the CAD unit, so we tried to create a world record golf driver.

(...) So we had to design it ourselves, and for the unit we had to put it into CAD, and put us designs on paper into the computer and test it and run an analysis. So they (employers) came in two or three times to check us progress and we could get ideas from what they were actually doing.

R22: I have enjoyed my first year at UTC a lot. I feel I have gained a lot more experience in the field of work than I would have at any other college. Yeah I feel that the education I have got from here on the to....It's that we are learning, I wouldn't have learned as much as I have elsewhere because obviously we are specialised, so like it's exactly what I want to do so it's all good.

4.3.2.5. Self-schema motivation

Learners in this research commented upon the way they felt improved as a person for having attended a UTC. Their self-efficacy and their belief in their own ability to achieve was reflected in spontaneous contributions, and this is in my view a particularly important finding in the study, not identified in earlier research.

R57: My first was I feel a better person for having been to the UTC, I am not sure if that's because I am so much more mature now than when I was in year 9, or because I have just got more independent.

R53: Well for me my number one was 'I feel a better person for having attended a UTC' simply because I have been able to find myself better than I would at a conventional school. So, there is more responsibility

really, so you can find what you are good at, and actually discover some things that you didn't know you were good at. I have been able to almost craft my career around that...and like trying to find something and I have become good at that. I can do something I am already good at.

S67: I feel a better person for having attended the UTC.

These learner comments reflect the satisfaction they have derived from their UTC learning experience, in that they have identified and mastered skills which have positively impacted upon their self esteem. Learners were aware of feeling somehow positively changed by their learning experience, indicative of the self-schema group of motivational theories and of self-determination theories.

4.3.2.6. General comments on motivation

Occasionally, an interviewee would present a general summary of their perception of overall motivation of learners linked to particular features of the UTC model.

HT: So the whole influence of the UTC philosophy of education, whilst we do have very good teaching, but that whole exposure to everything that we are doing is having an impact on progress of learners, not just in technical learning, but in things like English and maths, and they are all benefitting from that wider exposure to really engage and motivate them in the learning.

4.3.3. Comments relating to suggested causal influences on learner motivation and influences identified by respondents ranked by volume of learner response to each of the themes.

In this section, using the coded thematic sections of the interview transcripts imported into NVivo I have presented a selection of learner views by theme, presenting these by order of greatest volume of learner comments recorded. It is acknowledged that the classification of learner comment by theme is subjective and there is inevitably a certain amount of duplication. For example, I have classified a learner comment specifically relating to a better career

potential in the careers theme, but it could be the case that learners may in their own minds have considered the multiple links with employers in addition to the subject specialism as offering a potential better career choice, but without explicitly stating this link.

4.3.3.1. Learner perception of better teaching

Learners in this research identified better teaching in the UTC as the most important factor in their experience of the UTC model. The volume of comments on the high quality of teaching experienced and the impact of the care taken by teachers to give support was greater than for any other theme. Not all comments were positive on the quality of teaching and some learners identified room for improvement in their view. Space constraints prevent inclusion of the range and depth of learner comments but a sample is presented below.

S1: Well when I attended the open evenings, I thought that the quality of teaching could be a lot better in my old school and I think it agrees with what I thought because the teachers give you a lot more support and explain more stuff and it's progressing and I've got a lot more self confidence in my grades.

S8: I like the staff, they are different to what I have had in my old school.

R58: First was high quality of teaching, and the teaching has improved from last year.

R58: Er, I think the teachers know us personally and they know how we work best, and they are improving their teaching and that's better.

R59: On a side note, a positive that we have in this school is the teacher student relationship. I think the teacher student relationships are like those you would have with other students...you are like trusting and behaviour towards one another is generally on the whole very good. The one-to-one time that we get with our teachers is quite a lot better than at a normal school which would have like a thousand students compared to 200.

R102: Well yes I think you get more teacher support.

S91: I agree with S95 about the teachers making time for you. They are always there to listen to me drivel on, which I quite like because it means I don't do it in the middle of the lesson, so I still get my work done.

4.3.3.2. Learner perception of new learning style

This theme emerged as extremely significant in the perception of learners describing their experience of a UTC and a large number of comments were recorded. This theme had not emerged strongly in earlier UTC research cited above. Learners in this study commented on their appreciation of the new learning style they felt they had experienced and their resulting enjoyment of this. The learning style emerged as the second most referred to impact of the UTC model in the learner focus group interviews.

R18: I really liked being able to manage my own time for work.

R15: Well you get more freedom to work so you are more independent really

R16: The learning here is much more useful and relevant, here it is completely different but good.

S1: The day is a lot longer, but I have thought about....nothing's the same. It doesn't bore you that easily; nothing will be the same everyday.

S4: Yes I agree with that, at my old school you would do just one topic and you would get bored really, but here, nothing's....everything changes every day and there is always something to look forward to.

S12: It's a lot more independent work and you have got to think for yourself.

R110: It's a lot more independent, so you are given the work, you are given the tools to do it and if you do it, great. But if you don't, you really should have done it. You have to be a lot more disciplined with yourself here. At other places teachers can write disciplinary things for you, but here you have got to get yourself organised and get yourself into a routine. I think it's better to get on with working ourselves...better to get into this routine now because when we get into the workplace, we already know how to.

R100: In my last school I did two English exams because I had to repeat it, but here recently I managed to pass it first time.

DD: What do think led to that, was it because you worked harder, or something else?

R100: I think it was the learning environment, you are much more relaxed because you don't feel you are in a normal school.

DD: Does it make it more enjoyable?

R100: Yes.

Learner comments above reflect intrinsic and interest motivational theories, with a strong indication that learners feel that they have autonomy, but also believe in their own capabilities.

4.3.3.3. UTC culture and behaviour expectations

Head teachers were able to discuss their perceptions of how behaviour expectations had been modelled on mutual respect and this was confirmed by the learner comments. Similarly learners confirmed that the vision of a professional or business-like culture desired by both head teachers was present in their view.

HT comments: So I think there is a thirst for knowledge and the students here, particularly a lot of the year 10 students talk about this being a completely different atmosphere to their previous school, it's the respect thing and they all relate together but they talk a lot about wanting to do better. We set off from day 1 with a professional ethos. Students are caring towards one another; they very quickly developed a shared ethos. Being resilient is a key quality of our students and they understand that. It's all those skills, its all those other qualities that you gain from that exposure to a wide range of professional people in the building. The really positive impact for me is um, the behaviour in the school, but wider than that you can see the quality of the young person, and how they present themselves at interview, and how they make a really positive impression initially with some body that is so important in the world. I mean so many employers will talk to me about how students will often shrink back and mumble if they meet them, whereas ours come across very confidently in how they can interact with adults and other people they have never met before which is a great thing to develop on top of gaining the qualifications and the skills as they move along.

R13: I said it was very successful and also very professional, we get respect. Like in other schools, they just give you work, but here they give you the work, they talk through the work, they make sure that you understand.

R26: I also found that the work ethic overall, everyone would be wanting the same goals, they would all want to get the same grades, and because there are so few of us, everyone effectively wants the same thing, so everyone would be working towards that same thing and there wouldn't be as much disruption.

The head teachers described the positive benefits for learners in terms of the confidence they were able to develop and this is confirmed in learner comments.

The comment R26 above illustrates a theme which emerged during the study, the learner's appreciation of the benefits of small class sizes in a new school, enabling them to gain from greater teacher attention.

4.3.3.4. Learner perception of employer links

This theme captured a large number of positive comments from learners who provided numerous examples of the beneficial ways in which they had interacted with employers. The findings reflect the positives emerging from earlier research cited above on learner perceptions of the UTC model. They are 'thick descriptors' (Geertz, 1973) in this research; multiple comments garnered in the field during qualitative research, which illustrate events or occurrences in context.

R25: It's a new challenge, so it's a different way to look at things...it does give us some experience of the real world...so time keeping and deadlines and....

R110: I have learnt how to deal with people in the workplace but how to deal with more senior people. So if there is somebody coming in from another company or whatever, I have learnt how to be with them in a more professional manner. At secondary school, you just didn't get that opportunity.

R56: Similarly to person 1, I feel that the tasks were setting a real-life example and in real-world projects, so the fact that they taught us from the employer's point of view, and what they would expect, I think that broadened our views also.

S78: So I have like started to work with an employer and I just love it and

it's another organisation and coming here I have felt more interactive with the industry.

S80: I think working with employers is really good because it like gives you an insight into the company and you know what you need to do to get there.

S11: The work we are doing right now with Sero, the way they presented their information to us was quite interesting and they made it really relevant.

The positive endorsement of working with employers given by learners indicates extrinsic motivational drivers as described above. Learners are relating their actions to developing strong contacts with employers and possibly their futures.

4.3.3.5. UTC value added for learners

A number of learner comments in the theme -coded sections directly refer to the value-added learners perceive in a UTC context. This theme reflects the strategic intention of the architects of the UTC model and head teachers to create an environment where learners, parents, employers and other partners perceive that the new UTC model does add value to a learner's experience.

LB: You can see this in some of the letters the parents write to me, the children say this is the best school they have ever been to, they like it and they are learning something useful, and they are not 'bunking off' and not complaining about the school and doing interesting things. And so we have an interesting curriculum, which is very proactive (...) First you have got to provide good premises, good equipment, the promise of a sound education. When we recruit at 14 we are asking youngsters to join us, we are asking them to leave the school they know about, the school where they are just about to start GCSE, where all their friends are and it's an enormous act of courage for youngsters to do that.

HTR: Yes I do think it....represents a distinctive approach. I think that what that looks like for us if I could use a particular example of it, is the amount of times that we are brave enough as an educational establishment

to say, let's do something different. Our links with our industry partners are very strong and very supportive. As I said, today we have probably got about 30 industry partners coming in to look at the exhibition that our students have done (...) we believe that making sure that the individual is ready for the next stage is most important and therefore the transfer of personal and professional skills that we are able to deliver through the projects and through a different type of curriculum means that youngsters really grow in other ways too, and that's something that we have seen. (...) We have got youngsters who are just finishing year 13 and they are going off to sponsored degrees, they wouldn't even have known they existed, never mind managed to get one. The students, the level at which they are achieving in terms of national averages, is way above national averages compared to their starting points. The grown up working environment just means that they develop skills that you don't normally develop until you go to work, and they are getting a heads up, they are making mistakes that they can put right now, in a nurturing environment, rather than when they go to work.

The comments above stress that learners are expected to benefit from an interesting curriculum that will appeal to intrinsic or interest motivational drivers. The PBL aspects and vertical learning opportunities are designed to enable the learners to develop as people, and the learners confirmed that this was the case as indicated below in the next section (R59, R52 and R51 for example), reflecting self-schema motivational theories. They are aware of their own development as learners and individuals as a result of their experiences.

4.3.3.6. Learner perception of project based vertical collaborative learning

Comments on this theme from learners were mixed and changed throughout the two -year period. In the first year of the study some learners and teachers in one location were not enthusiastic about working in vertical groups on projects, finding it a distraction from more familiar modes of study. However the majority of learners in the second year of data collection had views reflecting the importance of projects as a learning experience. Comments were particularly encouraging and significant in the degree to which learners valued this new innovative experience and how they had developed as individuals to

cope with the new experience. Learners stressed that they appreciated they would not have had this opportunity in other schools, and for them it was a key factor in their learning experience. The use of project based vertical delivery of learning is the most unique aspect of the UTC curriculum model and for this reason, a greater number of comments has been included below which illustrate the way in which learners appreciated what they had learned from this delivery style.

It also received strong endorsement from Ofsted (2015:5)

Students complete demanding group projects linked to the UTC's business partners. The projects (...) result in extraordinarily high standards of work by students. This is because of the projects' foundation in real life situations (...). Partners speak of remarkable outcomes for students in the development of their analytical skills and confidence in presentation. One partner commented that UTC students are 'fizzing over' with creative ideas.

R110: We had all year groups, and then we had mini teams within the team as a whole, IT people, engineers, people doing the write up, it was quite good like that.

DD: And how did you find that, working with different year groups with different specialisms?

R110: I think it made it a lot more like the workplace because it made you work with everybody regardless of whether we would work with them normally.

DD: Did you have the chance to be project leader?

R110: Yes I got the chance at the end of that project briefly and for the Cisco project for the whole duration.

DD: What do you think you learned from that?

R110: That it really, really pays off to be patient with people when you are a project manager!

DD: Have you been a project manager on any projects?

R57: Yes I have on the last project. (...) It was interesting, we haven't done projects on that scale before, but it was a very good learning experience.

DD: Ok, and was there anything you didn't like about it?

R57: I didn't like how it took a lot of time out of my work.

R59: Well, I think it was during the last project, you know, in the last term or so, I realised where I wanted to be in the next couple of years because the opportunities my school gave me...in this project...it was tough, I am not going to lie about that, but it was a good experience and that's the sort of thing that I am going to be needing to put into the work place.

DD: How important has it been to work with older learners in the UTC, how important has it been to work with the year 12s and year 13s?

R59: I think it's been one of the most important things because in a normal secondary school, you wouldn't..because the 6th formers would be separated from the rest of the school, you know they would be in their own building and they would have their own events, and we would be just sat here like...ok, we are still children as such, and I think it has helped us be treated more like adults and be more mature and grown up as we mix with older kids, well older people....and it's really helped to share the system and um, get to know them.

R52: I think that's one of the biggest 'sell' points here..you..if you want to become a leader in the field of anything, you can learn those skills here, and at such an early age and that's definitely a good thing.

R51: Just adding to that, I feel that what we have had to do...like, some of the other students were not as mature, so they kind of mess about and it taught me how to deal with thewell like how to react properly and not get angry as I probably would have previously..yeah

R53: To add to what they said, I think what this has taught me is to like take tough decisions, because I was in the position where I had to kick some one out, so you had to ...when you reached the edge, you had to make some one understand that he was pulling the team down.

R110: Well we were put into teams and we had to redesign a level crossing. So, we had to do all of our own research on it and read and come up with plans, make a model, create an App that would work alongside it. So we had people with different specialisms, different talents and we were working together to get something that in the end would actually work.

The comments above collected from learners reflect the more realistic nature of working with employers on projects over several weeks in a UTC setting, compared to a two week work-experience interaction with employers which would be more usual in a non-UTC setting. This close relationship and significant project work is endorsed by Ofsted and learners alike as a significant factor in the UTC curriculum model, which as learners above have indicated results in increased engagement and enjoyment for learners.

4.3.3.7. Learner perception of better prospects in UTC

This theme resulted in a good deal of duplication with other themes because it could be argued that a learner might perceive every aspect of a UTC to be potentially related to better prospects for their future. No negative comments emerged from learners on the potential impact they perceive their decision to move to a UTC to have had. The specialist employer links and the positive connection to future prospects were also endorsed by Ofsted (2015:1):

The business-like ethos of the college permeates all aspects of learning. Students are prepared exceptionally well for their future lives in modern Britain.

and (2016:1):

A quarter of learners move onto an apprenticeship. This is a much higher percentage than the national average.

R16: I found at my last school, whenever I asked to progress any further, they said no, you have to wait, but here if you want to progress further you can (...) The best decision I have ever made, its been a great experience.

R18: I was motivated because it's much better than my previous school; there wasn't much to offer. Different from what I expected, yet again not good or bad, definitely better than my old school.

R19: It was a more positive year than 3 years at previous school

R25: I found the new building was encouraging, and the specialist subjects, Engineering and IT, I thought that was the way forward, it was good for the future....business prospects.

R26: I mainly thought about my future and how...the extra things that we could do here would be of benefit for my future, and that really motivated

me to come here and it really made me want to get the correct grades at GCSE to come here. I think that probably got me through my GCSEs, the kind of thought that if I got the grades I could come here and I was really looking forward to it.

R20: In my case it was about furthering my programming skills because this was such a heavily technical based college and I was hoping that ...that was something I could improve here...and also to pick up a better maths grade.

R21: Learned a lot and can now achieve better in the future because of it.

R105: I have made massive progress this year and I travel from N on the train, so every day, I never regret it because it's worth coming here.

R53: I think coming here was a bit of a gamble, well it was a total gamble because I was at a good school and all was well, so ...but I knew what I wanted to do and it paid off. It definitely paid off, so...I would recommend it.

S80: In my old school, I didn't feel I had much of a future, but now I am here I feel that I can achieve a lot.

S83: Er, it was a good choice...one of the best choices I have made...learning wise and for my future, it's been a good choice.

S82: It's a lot more enjoyable in the way that you know you are going to get a better future. The way that you learn here is a lot better for you and you are treated more maturely.

S80: I think everything that we have done is worth it...it's like a rainbow...at the end of the rainbow there is treasure, so...it's good.

Learners' comments above on the importance of contact with employers and perceived improved future prospects are, as noted elsewhere, reflective of extrinsic motivational drivers predominantly. It is significant that learners identify their own motivation, and what causes that, without being prompted.

4.3.3.8. Learner perception of the curriculum specialisation

Earlier research (Bathmaker and Ingram 2014) found that the choice of curriculum specialisation was an important factor in the motivation of earlier cohorts of UTC learners to choose the UTC environment. In this study these findings are replicated, with learners noting that the choice of specialisation

had motivated their move to the UTC, and that they appreciated the opportunity to acquire professional qualifications not available at their previous school, in IT for example.

S11: It was an Engineering College and it was ...for what I needed to do I just didn't want to study A levels to get to university, I wouldn't enjoy it and I would just end up dropping out and I wanted something to help me with my engineering.

S12: The specialisation and it says it's mainly an Engineering College and you think oh right it's going to give you more opportunities....that's what most people think

R51: There is also the professional qualifications we can do, and that's on my list, so right now I want to do some MCA's and I have done like Cisco suite and I want to do some Microsoft Office, just to make my CV look better.

S84: You see I have never done engineering before and I thought it was something new to do and the people from the year above that came from my school, they said they really enjoyed it, so I thought I would come here and start doing engineering.

DD: Any worries about being a girl in engineering?

S84: Well, yeah, to start off with, but once I started it were....I felt fine.

S85: My sister is also an engineer, she has just finished her degree, and she says how good it is and there is a need for engineers, and the money that you can make with it as well, that's another plus thing.

S83: I came from a background of engineers in my family, so I could see how important it is and how interesting it is. This school is like very specialised in engineering and I thought it would be like a good opportunity.

Interest motivational theory is strongly reflected in some of the learners' comments above.

4.3.3.9. Learner perception of better UTC culture and behaviour

A number of learner comments on this provided an insight into a work-related culture and aspects of better relationships in the school. The negative

comments from learners were on perceived lack of sharpness in communication and organisation on the part of staff.

R58: We are encouraged to do our best always.

R59: I think it would be better if students had more say in things that affect them. Like, study leave...I live in C and study leave only starts a third of the way into exams, and even though it's not very easy, I have to come in every day for...it's compulsory for a couple of hours and that's disruptive, especially if we have exams the next day.

R60: I think that one thing that I have found is that there is quite a lack of communication and organisation around (...) and everyone is like freaking out like headless chickens to work out what the actual thing is that we are supposed to be doing...(Laughter). I should think that will change...

R61: I have personally told members of this group that...in a normal school, you see people going against the teachers all the time, and stuff like that whereas here the teachers have such a good relationship with the students, the students respect them a lot more. So they don't put them down and..things like that.

R60: Yes there is better discipline.

R58: Yes this is a really good environment to be in because you have people with common goals.

R105: Well it seems more mature here as a school, and it prepares you better

R102: The work environment is really focussed so you can be more focussed in your learning.

Yeah, everyone seemed to get along and that ..

S81: The UTC seemed different from other schools.

DD: What did you expect it to be, how did you think it would be different?

S81: That they treat you more like a grown -up and it's more of a working environment.

Ofsted judgments reflected the final learner comments in the text box (2015:1):

students' behaviour is exemplary (...) students respond enthusiastically and support each other in learning.

However, a number of comments in the text box above do indicate that learners are able to advance constructive criticism of how to improve their UTC experience.

4.3.3.10. Learner perception of better support

This was an important aspect identified by learners. Numerous comments were recorded of learners describing the help and support received from teachers. Learners also spoke about help received from peers in collaboration and these comments are referred to in section 4.3.3.7.

R106: I think you get more support here by teachers; they help you so much compared to in my old school.

S95: I think the most important thing was that the teachers give you massive support. I mean, both classes are really full now, but they will say, come back later, and they always make time for you and help you.

Ofsted judgments reflected this (2015:7):

students' progress is tracked carefully and individual support provided swiftly.

4.3.3.12. Learner perception of greater use of ILT

A number of comments from the combined transcripts indicated learner appreciation of the greater use of their own (school provided) device and the link with a more independent and technology-oriented learning style. The comment presented below is an illustrative example.

R104: I like the learning style here because it is sort of unique compared to nearly every other school in the country because erm, for example in English if you were told to read a book you probably get some really tatty book that's been graffiti'd all over, whereas here, we get a laptop with an e-book on it so that's better.

4.3.3.13. Learner perception of better resources

Seven comments from learner transcripts, all positive, identified the state of the high quality of resources and facilities. The comment below is a typical example.

R23. Yes the actual facilities as well it's just so kind of...top ...and I don't really....like there's no where else you can go that's like it and that's probably the best thing about it. You can go anywhere and do anything.

4.3.3.14. Learner perception of better career choice

Three main features were identified by learners in this section; the subject specialism available to a more developed degree than in their previous school, the additional professional qualifications offered by the UTC and the knowledge gained of a greater breadth of career possibilities. All of these link to extrinsic motivational drivers.

R26. I thought that before I came here I was kind of ...I felt as if I was going to restrict myself too much with specialising and that was it ...I would be doing computing and that's all I could do, but over the year I have found that there are loads more opportunities than the one specialism with what I have done already I have...just by being here I have learned about the thousands of different opportunities I have got...

4.3.3.15. Learner perception of smaller group size

Four learners in this study identified the smaller class size as important to them in that they were able to benefit from greater interaction with the teachers and more resultant support.

4.3.3.16. Learner perception of new start

Identified in earlier research by Malpass and Limmer (2013:5) as a significant reason for the motivation to select a UTC, learner comments in this research did not reflect this finding, with only 1 respondent identifying dislike of previous school and need for a new start as a reason for choosing the UTC.

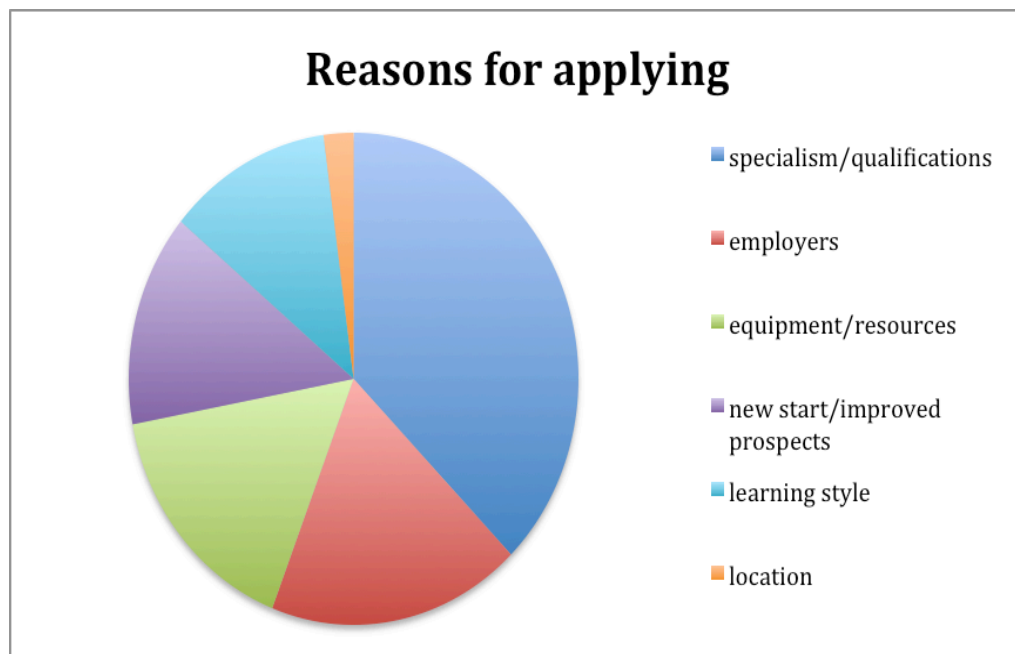
4.4. Combined data sets

4.4.1. Combined questionnaire data set from year 10 and year 12 groups

In this section I have taken the combined questionnaire responses from learners who had experienced one year of the UTC, the year 10 and 12 cohorts in each of the two locations, and presented an analysis of key factors in the combined overall responses.

4.4.2. Reasons for applying

Learners chose the UTC for a number of reasons –



As indicated above, it is interesting that 12% of participants surveyed opted for a new learning style in choosing the UTC. They understood this to mean more control over their learning, involvement in collaborative, project-based learning and greater independent research in a flipped-classroom approach to learning. The subject specialism clearly predominates as a reason for choice and links with employers and resources figure strongly.

4.4.3. Analysis of factors positively impacting upon learning (Prensky, 2011)

Year 10 and year 12 learners 2015, 1-year experience of UTC

Table 4.4.3. To what degree would you consider that the following features are encouraged in your learning at the UTC, compared to your previous school?

n = 25

Activity	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
1. Research answers to questions on your own	24%	60%	12%	4%	
2. Connect what you learn and do at the UTC with the real world of business/industry	24%	72%		4%	
3. Get help to improve your skills	40%	44%	12%	4%	
4. Interact with other students and teachers as a learning partner, to learn in collaboration	36%	52%	12%		
5. Use your own devices or resources to enhance learning (mobile, laptop, video/ You tube)	72%	28%			
6. Use more peer to peer teaching with other students than in your previous school	24%	40%	28%	8%	
7. Have more choice in what activities you do within an assignment or task	20%	36%	24%	20%	
8. Use and organise classroom technology	20%	48%	24%	8%	
9. Share and celebrate your successes on You tube	4%		44%	36%	16%
10. Interact with other students in other learning locations, e.g. other UTC or via Skype		12%	40%	28%	20%

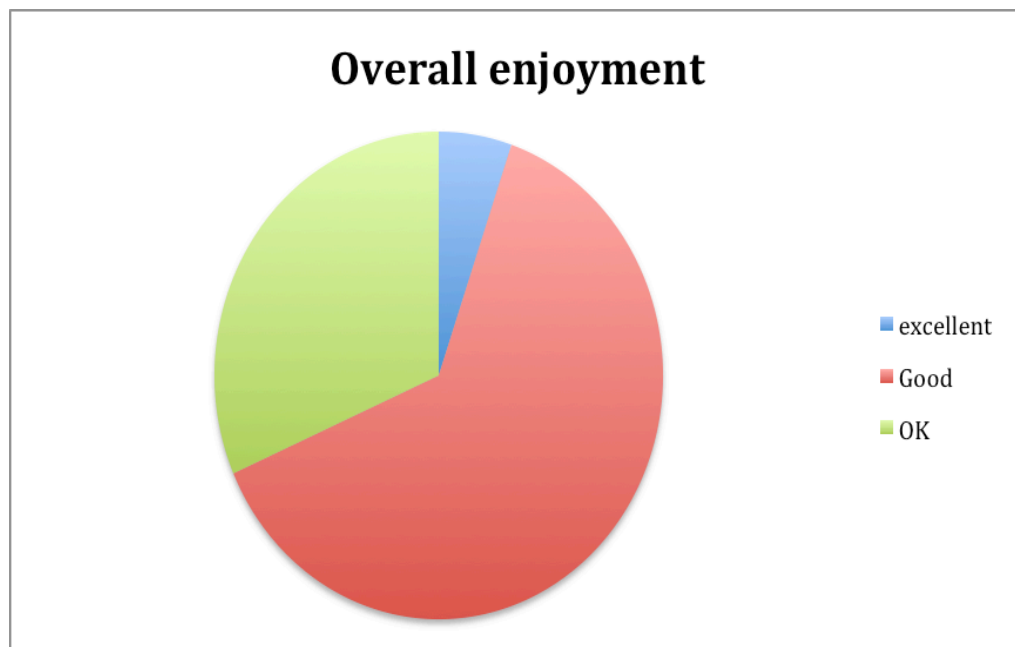
The three strongest features in the perception of these learners with one year of UTC experience (strongly agree responses) are the fact that they use their own devices to enhance learning; they get help and support and that UTC learning is strongly connected in their view with the world of work. Collaboration in learning and independent learning feature strongly also. The weakest responses (9 and 10) are possibly reflective of the newness of the schools; the management is concentrating on getting the basics right in the school before networking with others. In such a context it is unlikely that pupils would have experienced celebration of success on YouTube, as no exam results had been received at the time of the questionnaire survey, or networking with other UTCs. When asked about this in particular, head teachers felt that these were aspects they would certainly want to explore in the future.

4.4.4. Combined data from year 11 and year 13 groups – 2 years of UTC experience

In this section I have considered the overall questionnaire responses from learners who have had a longer two-year experience of the UTC environment: the year 11 and year 13 cohorts in both locations. This has potentially allowed a more measured perception to appear. Learners with one year of experience were extremely enthusiastic, and this may reflect the novelty and halo effect of the new environment. Learners with two years' experience of the UTC have had the opportunity to appreciate the strong points of the model, but also any shortcomings.

4.4.5. Overall enjoyment of learners completing two years

As indicated above, learners did not identify a poor overall experience of the UTC. At worst approximately one third of learners considered their experience had been satisfactory, but the overwhelming two-thirds majority rated their experience as good or excellent.



4.4.6. Important features of a UTC – learner perceptions

In table 4.4.6. below I have collated all the questionnaire responses from learners with two years of UTC experience to a question which required learners to identify in their perception features of the UTC model which were important to them and to attempt to rank these in order of their perceived importance. The suggested prompts in the boxes reflected learner identification from the pilot year of data collection of factors considered important, but as can be seen learners also identified new features of importance, for example the professional qualifications which learners would have completed in their second year of study. The majority, although not all learners, did rank responses in order of importance.

Table 4.4.6. Year 11 and 13 learners in 2015, overall experience – most important factors - 2 years of UTC experience

Total participants n=19, total responses = 283 factors identified.

Thinking about your overall experience at the UTC, what have been the most important factors? (*learners added items in italics with numbers of learners choosing the factor marked in the right or left-hand column*)

No. of learners	Feature	Feature	No.
11	High quality of teaching	Interesting tasks in class	5
6	You can choose tasks you prefer to do	Tasks are realistic/real world projects	9
10	Interesting work with employers	Work experience opportunities	13
5	Support to set challenging goals	Frequent progress review	7
10	Teachers give us lots of feedback on how to improve	We are encouraged to do our best always	9
4	Personal support for my needs	Setting my own achievement targets	4
8	Extra help from teachers when I need it	Working in groups with older or younger students	4
6	Learning from my teachers	Learning from other students	5
6	Teaching things to my teachers	Teaching things to other students	6
10	Learning from employers	Learning from projects	8
11	Use of good equipment/resources	Use of ICT/technology in lessons	10
9	Finding things out for myself	Doing independent study	7
2	Longer hours during the day	No homework	5
5	Everyone can achieve their potential	The UTC has given me the opportunity to progress to my chosen career/next stage of study	12
7	Careers Guidance	Teachers take time to get to know us	7
6	It feels like a family here	The culture of the UTC is one of high achievement	4
5	The school is about the right size	Students get on with their work and do not disrupt others	0
7	The culture of the UTC is relaxed – you are not pushed all the time	We use the Internet a lot in our learning	10
9	I feel a better person for having attended the UTC	The UTC has made me more motivated at school	7
8	My school performance has improved in the UTC	<i>Professional qualifications</i>	1
1	<i>Being able to choose your own path</i>	<i>Exclusive courses</i>	1
1	<i>Huge workload to mimic real life</i>	<i>Work with like minded students</i>	1

In terms of the learner ranking of features in order of importance the top 5 ranked are:

1st Work experience opportunities;

2nd The UTC has given me the opportunity to progress to my chosen career/ next stage of study;

3rd=High quality teaching and use of good equipment/resources;

5th=Interesting work with employers, teachers give us lots of feedback on how to improve, learning from employers, use of ICT/technology in lessons and we use the Internet a lot in learning;

10th= Finding things out for myself, I feel a better person for having attended the UTC, tasks are realistic/ real world projects and we are encouraged to do our best always.

These can be summarised as: the value of working with employers on projects and the career potential this is perceived to offer; the quality of teaching and support, including the use of technology in lessons; the more independent learning style; the impact of the UTC environment on the learner in the encouragement given to learners to succeed and the way it makes them feel. These suggest that extrinsic motivators derived from the close working with employers and potential links to the future are strongly present. Interesting tasks and autonomy in learning are also present, reflecting interest, and SD motivational theories.

As indicated above in chapter 3, the data gathered from the questionnaire surveys was useful in triangulating the findings from the focus groups. On the whole, written responses and elaborations in the questionnaires were limited where learners were invited to provide a written comment. The two tables presented above are included because they illustrate the importance that learners with one year and two years experience respectively attached to particular features of learning in a UTC.

4.5.1. Summary and evaluation of case study findings, combined pilot study and main study

The learner interview transcripts and questionnaire results strongly indicate in my view learner satisfaction with particular aspects of the UTC curriculum model. As indicated above in section 2.3.5, some features had been identified by earlier research, particularly the importance of the subject specialism, and the close curriculum involvement with employers. Learners in this study

positively highlighted both of these. Learners also perceived better individual progression in a UTC environment and this supports the earlier findings of Acquah, Malpass and Limmer, (2014).

This research did not, as indicated above, identify significant numbers of learners for whom any new start would have been attractive, and this differs from earlier research into the model (Malpass and Limmer, 2013).

Additionally in this study, learners identified high quality teaching and better teaching than they had previously experienced as being very important (section 4.3.3.1). They referred to the significance of learners having shared goals and a commitment to a work ethic, which in their words led to less disruption in the classroom from disaffected or disengaged learners (4.3.3.3). They referred to a climate of mutual respect between teachers and learners (4.3.3.1), leading to this improved behaviour. There is a sense of a behaviour framework for learning, in the Ofsted terminology, and teachers spoke of learners demonstrating a thirst for knowledge. Both teachers and learners confirm a culture of high aspiration and expectation and strong goal setting patterns (4.3.2.1).

New factors considered important by learners emerged during the course of this study that were not identified in earlier research. Learners in this study acknowledged the positive benefits of working in smaller groups than in their previous schools, which allowed for greater attention to be given by teachers to learners' needs and their targets (4.3.3.1). They appreciated a new learning style and enjoyed collaborative working in vertical groups (4.3.3.6). Project - based vertical learning groups received a mixture of comments in one location in the pilot study, but by the second year of the study, learners had come to be more positive about the impact of this learning model on their individual development. Learners appreciated the personal leadership skills they had acquired whilst being project managers in the group work, having to manage older learners, or learners not fully contributing to a task, and many felt that this offered a much greater real-world experience than they might have obtained elsewhere (4.3.3.6).

The views of learners in this study indicate a strong endorsement of Prensky's (2011) features for high impact in learning as referred to in section 2.2.3. above. A large majority (>70%) confirmed their experience of a perceived greater independence in learning, more realistic work-related tasks, greater collaborative learning and greater use of technology in learning.

4.5.2. Motivational theory and aspects of the UTC curriculum model

Learner transcript comments and the learner perceptions presented in the two tables above indicate a range of features, which in their view enhance motivation. In addition to the goal setting which learners described in section 4. as being more rigorous than in their previous schools, learners spoke of interest motivation derived from the subject specialism and professional qualifications being pursued. They described preferences or drivers indicating both extrinsic and intrinsic motivation being experienced as indicated above, whereas earlier research into the UTC model found either extrinsic motivational factors to be dominant in learner motivation (Bathmaker, 2005) or intrinsic motivational factors (Malpass and Limmer, 2014) but not both. A large number of comments do relate to the extrinsic motivation provided by perceived better career prospects and stronger links with employers, but there is a sense of enjoyment of learning developed in collaborative working on perceived realistic project tasks. As indicated above, learners also recorded their views of greater self- motivation. Self-determination theories of motivation are reflected in the autonomy learners have to engage in new tasks or challenging learning projects. Self-schema motivation was captured as the affective impact learners described as a result of their improved self-confidence (4.3.2.5) and acquisition of new valued skills (4.3.2.4) and their acknowledgment that they had developed as individuals.

All of the 5 types of motivational theories as described above are thus reflected in comments provided by learners, both in the focus group interviews and in the questionnaires. Given the number of respondents, it is not possible to suggest that any one motivational theory emerges as conclusively more significant than others. For example, there is an overriding goal of securing a future direction perceived as meaningful either through employment or further

study, suggesting that extrinsic motivational drivers predominate. However, other comments reflect the presence of goal setting within the curriculum, and would tend to suggest that goal setting motivational theories are also significant. Learners' comments on task-mastery, autonomy in learning tasks, interest and enjoyment also suggest that SDT motivational theories are important in motivating learners in the UTCs. As indicated in chapter 2.3, the use of 5 types of motivational theories to categorise learner responses has served as a framework to begin to consider what is happening in a UTC context. Given the size of the sample, the relative newness of the UTC curriculum model and the space constraints of this thesis the findings both confirm some assertions of the existing early research and identify new areas for more research to examine further the motivation of UTC learners.

Chapter 5 Discussion, contribution to knowledge, and concluding comments

The literature review in chapter 2 indicated that up until 2010, repeated government initiatives designed to deliver high quality, motivational, technical learning for young people have not yet resulted in the stated desired outcomes. The literature review also highlighted those aspects of curriculum delivery (encouragement of autonomy, choice of task, strong use of learning technology), which have had demonstrable positive impact on learner motivation. The literature review of types of motivational theory also indicated 5 principle areas, tested in the research, where learner motivation could be observed and categorised. The discussion below considers these three themes of the literature review and how these have been reflected in the research findings and conclusions.

Learners in the UTCs case studies demonstrated high levels of motivation to pursue their studies, reflecting the findings of earlier research into UTCs cited above. The discussion in section 1 of this chapter considers some of the possible factors for this and presents new knowledge derived from the study. Section 1 also contains rival theories and alternative possible explanations for the results seen in the data. Section 2 presents the contribution to knowledge. Section 3 presents recommendations for further research and section 4 records personal reflections on the study and concluding comments.

5.1.1. A discussion of motivational aspects of the UTC curriculum model for learners

My research question as stated in the introduction is

How has the University Technical College curriculum delivery model achieved motivational benefit for learners?

My 3 research sub-questions are restated below together with a brief discussion of findings.

1. Is the UTC culture an important factor in encouraging learner motivation? I am including within the term culture the size of the school, the business ethos and the nature of behaviour, the support for learner achievement

goals, and the opportunity for a fresh start for learners, as identified in the research cited above.

The teachers interviewed in the pilot study supported the view that the culture of the UTC encouraged better behaviour and disposition towards learning. Many were accustomed to teaching in other environments and reported that behaviour of learners in the UTC environment was of a higher standard than they had experienced elsewhere and high behaviour standards were also confirmed by Ofsted as noted in chapter 4. In the teacher focus groups views were expressed that this facilitated an attitude better disposed towards learning, or a ‘thirst for knowledge’ as Ofsted term it (2015:55). Learners’ views indicate the greater degree of independent research they feel they undertake and it would be reasonable to argue that the improved learner behaviour might be due to greater engagement with highly valued learning activities and the UTC stated culture of supporting learning by encouraging responsibility.

Each UTC has worked hard with a range of strategies to encourage a sense of belonging to the UTC in the learners, and a sense of shared identity and shared values, reinforcing the culture required. Learners also appreciated the attempts to establish a clear learning culture. The importance of shared values and the link to higher educational achievement is evident from other research (Yeager and Walton, 2011: 6).

Both head teachers maintained that their schools set high aspirations. Learners in the focus groups agreed, but this was not triangulated strongly in the survey questionnaires.

There is a greater focus in the UTC curriculum on specific learning and pastoral strategies deployed to encourage and support learner achievement goals, as reflected in the learner comments captured above. The strong support from tutors on goal setting and frequent evaluation and feedback to learners charting progress was referred to on a number of occasions as indicated in 4.3.2.1. However, learners did not identify the process of goal setting as a key or important factor in their learning when invited to do so in the questionnaire, despite the fact that a large number of learners in the focus groups referred to

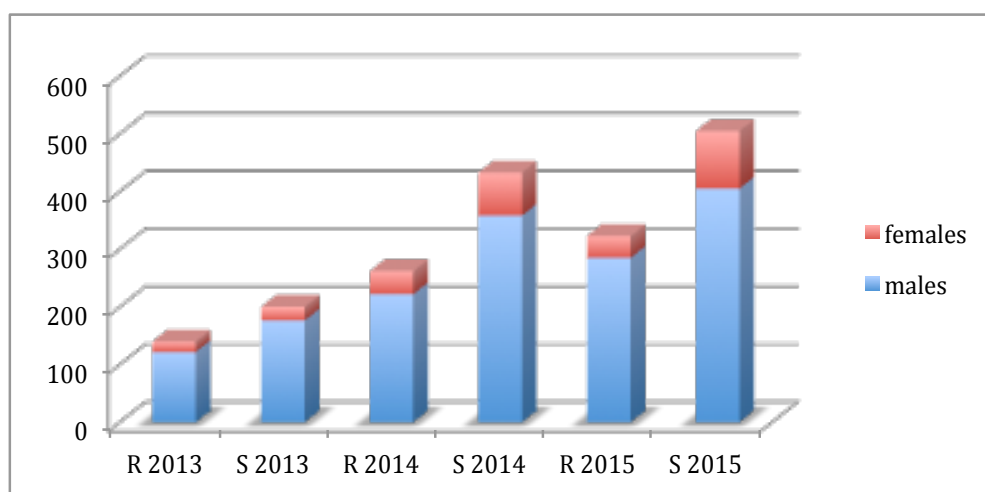
the importance of goal setting, as indicated above. A large volume of research exists, as briefly referred to in chapter 2.3, which documents the clear link between goal setting, feedback on performance and higher student attainment. The learner comments in sections 4.3.2.1. and 4.3.3.2. clearly identify a link between their goal setting and their perception of improved grades.

Further, although space constraints prevent a detailed examination, a brief consideration of the opportunity to set team goals within project based learning (PBL) indicates that to date this area is underdeveloped in the UTC model, and needs more attention given the collaborative nature of the UTC delivery. The nature of the collaborative, PBL environment adds additional complexity. In such a context, group goal setting leading to whole team achievement assumes increased importance. Individual motivational drivers need to become partially aligned or subsumed into the work of the team in a context such as a UTC, where significant portions of the curriculum are achieved in collaborative efforts in a PBL curriculum delivery. This subordination of individual goals to the goals of the group could present a tension. However, research has indicated (Slavin, 1983:443, 1989:166) that a greater focus on cooperative tasks or project-based tasks where individuals work in and become accountable to a wider group or team, with group rewards, can raise levels of individual achievement. Further, the inclusion of other peer groups in vertical-age teaching groups makes a focus on the whole team goal more important. It is a unifying factor in a scenario where new team colleagues are included and where individuals are obliged to act in team directed behaviours in order not to prejudice the success of all team members. These unique factors of the UTC curriculum delivery support the setting of team goals. Achievement is maximised by commitment to team goals and by extensive learner collaboration. Assuming a new importance therefore in the innovative setting of UTCs are team goals and the alignment to personal goals to achieve commitment. Research relating to collaborative or team goals and the alignment with individual goals, is relatively underdeveloped (Kramer, Thayer & Salas, 2013:288). In a global network age where collaborative learning behaviours and team achievement are assuming increased importance, team goal setting and the alignment with individual goal setting merits further attention.

As indicated above, the third element of the first research question, the new start motivation for learners was not born out by the findings from the two case studies in this research, as only one learner indicated that this had been important.

Table 5.1.1. Recruitment by gender in the 2 case study UTCs

Earlier research into UTCs cited above noted that a number of working-class boys were attracted to the UTC model, and that this was apparently explained by the subject specialism and associated gender recruitment bias towards boys. UTCs generally have tried to offset the early bias towards entry applications from boys. UTC S in this study has worked particularly to encourage more girls to apply using a very focused marketing campaign. It appears to be beginning to achieve impact with a 3-year increase in the percentage of females recruited, compared to the trend in UTC R.



I have not analysed socio-economic characteristics of recruitment in the 2 case study UTCs but this area would benefit from further research.

My second sub-question is

2. Do learners report that the involvement of employers with a specialist vocational focus and expertise has an impact on their motivation in the UTC curriculum?

The extended study week, the specialist content of 40% of the curriculum and the demonstrable employer expertise and engagement with learners is referred to by both teachers and learners in the research data and appears to have a strong impact on the increased motivation of learners. The length of the week, although sometimes perceived in the 2014 pilot study as a negative by learners, is a particularly important feature in that it could address the criticisms from many of the curriculum reviews cited above in chapter 2.2. The additional 15 hours per week in the UTC curriculum should allow for the inclusion of a greater focus on wider general knowledge breadth and on other types of skills and achievements such as effective communication and team working, frequently referred to by English employers as lacking in recruited cohorts. This is a unique intensive delivery week and not available to those not in a UTC setting, and outcomes over time will be important in determining possible effectiveness and appropriateness of this feature.

Learners in this study cited the links with employers as being one of the main reasons behind their decision to apply to a UTC. Employers are involved in a number of ways: giving motivational or explanatory master classes for learners; providing work experience; being involved in real life integrated projects and providing instruction or experience of particular aspects of individual workplace environments in those environments and out of the school setting. They are also involved in competitive presentations, in judging those deserving of a reward of a summer internship, and providing coaching and mentoring on project tasks. Mann and Virk (2014:1) refer to this as “profound employer engagement.”

The early experience of UTCs (...) suggests that ‘profound’ engagement may have significant benefits in terms of student motivation, achievement and progression.’

The greater involvement by employers is an important factor in raising the perceived status of the UTC pathway with prospective learners and their parents. All too often previous curriculum reviews referred to in chapter 2.2 have highlighted perfunctory or meaningless work experience components in the 14-19 curriculum, and the lack of employer involvement with or commitment to vocational education and training. The UTC model presents a

much greater degree of employer involvement than has been evidenced in any previous curriculum reforms and learners highlight the importance of this as noted above.

Staff interviewed in the pilot study acknowledged the different business-focussed culture and environment supporting strong employer engagement.

Can you say a little about the kind of culture you aim to encourage?

Head: If you go out at lunchtime and sit in our dining hall, it's very focused, it's very calm. We deliberately bring visitors, employers into the building, they eat in the dining room, and our students are always conscious they might be public facing, they might be sat in a room with their future employer, and that has a very positive effect on them the fact that they get a chance to talk to high level professionals. We have employer mentoring where a director of a large company will sit one to one with students actually asking them how things are going and giving common messages to teaching staff, it's powerful. (Transcript 2014 Interview Head Teacher)

Again, it will be important to monitor the experience of UTC learners over time and the relevance and impact of the greater degree of employer involvement on the learner experience and on destinations of learners. The closer links with employers on tasks perceived by learners as relevant and enjoyable as noted above in chapter 2.3 is strongly associated with goal, extrinsic and interest motivational theories.

My third sub-question is:

3. Do learners report an impact of the unique curriculum delivery style on their motivation? I am including in this sub-question the unique features of vertical age-integration in an intensive and innovative, project-based curriculum delivery with widespread use of Information Learning Technologies (ILT).

As a teacher interviewed in the pilot study noted:

A: I think the projects are an important part...this is the only school that I've ever been to where the kids are required to understand a degree bit

of knowledge that they have done for example for a bit of a project and they say 'can you just go through this with me? ', and it happens fairly regularly. They will research stuff, they will find it out and they don't understand it and they want to understand it so then 'can you go through it?', and that produces a very high standard if that makes sense. But at the same time these are real projects, it's not something that I have just found somewhere, an employer expects them to understand that bit of theory, to get their head around it, to do well at it, and they go the extra mile to make sure they get it. On a regular basis kids will come to you and say ' can you just ...?', and we'll have a look and come through that. It makes for better progress. (Interview transcript teachers, S 2014:4).

There is also a further unique feature: greater collaborative learning is deployed with individuals learning from each other and from outside the classroom on the web or at an employer's premises. Learners are also able to support each other in vertical age groups for much of their PBL. This vertical age interaction and strong focus on collaborative learning across other age or status boundaries within formal, assessed tasks has been given close scrutiny because it is not a feature of curriculum delivery which currently exists anywhere else in state schools in England. As one teacher reported:

DD: I am hearing from you that there is a sense of collaborative learning ...

B: Very much, from our perspective even more so. Obviously we are quite software driven in what we do and the students are wanting to do things (...) and they will go away and they will find somewhere where they can engage with other learners, a bit like they can engage with employers and get it done....and we are trying to keep one step ahead, or at least one step ahead of the students because...I am learning, my staff are learning. I am working to keep in step. At the same time it works quite nicely because we say, right we don't know how to do this, so let's work it out and I think students appreciate that more ...if we can't sort it out and the students can't sort it out we do have that employer resource...so we say how do you reckon on doing this? And generally we get a response. The collaboration is less about top down

teaching...(peer collaboration?) yes peer collaboration. (Transcript teacher interview 2014:5 UTC S)

As observer of a number of project based learning activities in the UTCs I was able to see collaborative learning and close engagement with employers in assessed activities in action, as documented in the researcher's journal in the appendices.

There are state of the art resources, including IT equipment and pleasant, inspiring buildings by virtue of the £10m capital development funding granted to each UTC. Learner views have reflected the greater (positive) presence of ILT and use of IT equipment generally in the UTC curriculum. Table 4.4.3. above measuring the presence of Prensky's ten impact factors for learning indicated that this was one of the strongest features perceived by learners in the UTC curriculum model.

5.1.2 Rival theories and explanations

Learner views noted above clearly indicate that there are many positively perceived elements in the UTC model. In the course of the study, learners voiced very few negative perceptions. However, it is prudent to consider other factors that may account for the overwhelmingly positive responses.

One rival theory for the high level of learner motivation observed in this study and in the earlier Bathmaker study (2014: 9) is the possible attraction offered to learners moving to a new school where they can create a new identity and display a new focus on work with new teachers. In the Bathmaker study, it was the second most prevalent reason indicated by learners for their move, the most prevalent reason being the subject specialism on offer. However, only 1 learner in this study identified dislike of previous school and motivation of a new start as the reason for their choice as discussed above.

The attraction of a new building and resources, or halo effect may also possibly explain the high levels of motivation. Data from the case studies examined show that although learners identified resources as being important, they are not the most important factors identified.

One further contextual factor is potentially significant. This study has looked at motivation for learning in UTC contexts in the period 2010-16. A significant environmental factor at this time was the impact of the post-2008 crash on the employment market and of austerity on the psyche of individuals. In such an environment, it could be postulated that an additional element of anxiety pervaded the lives of young people planning their future careers: the imperative to secure employment in a climate of austerity became critical for many young people. It could be argued that environmental austerity factors might have impacted significantly on the cohorts learning in UTCs during the period 2012-15. The assertion could be developed as follows: it is evident from the UTC schools websites that one of the marketing aspects heavily relied upon by UTCs in their recruitment strategy was the close cooperation with employers and the link to work experience, internship and potential employment prospects. In a climate where finding employment featured as a much higher concern for individuals because of the austerity/ post -crash environment, the possibility of a quasi-guaranteed job at the end of study will have seemed particularly attractive as an end motivational goal for many young people. Indeed, the rhetoric of many coalition government policy drivers was the need to rescue the economy and achieve greater financial security. The need to link a goal to personal agency, and the need to ensure that job prospects were fully maximised, may have motivated these cohorts of learners exceptionally.

Inevitably, this temporal factor, were it to be significant, would need to be tracked over a much longer time period and successive cohorts of learners. Therefore what is presented in this enquiry may be a start point in theory for further investigation. It is clearly important to keep in mind that the same imperative to find employment may have also significantly affected cohorts of learners in non-UTC settings, which are not within the scope of this enquiry.

5.1.3 Summary of Key Findings and conclusions

Perceptions of learners and teachers

Learners in the research commented that they felt supported in their motivation to succeed to a greater degree than in their previous educational establishments and therefore any initial anxiety at moving to a UTC had been reduced.

Teachers in this research were of the view that their primary purpose was to achieve the best possible results for their learners. Related to performativity and government targets, a number of teachers considered that the curriculum model of the UTC and the pedagogical style and approach adopted were unlikely to be recognised in current Ofsted inspection frameworks, and therefore unlikely to be given the credit the teachers felt these aspects deserved for their impact in supporting learner motivation. Conversely, teachers felt that one of the key strengths of the UTC model, the focus on securing a determined career path or job outcome, would be positively reflected in any Ofsted process, given the current government focus on employability of school leavers.

Clearly tensions had to be managed in the UTC's. In the pilot study at one UTC, some staff expressed frustration with the imposed curriculum delivery style of the UTC (project-based collaborative learning). They conveyed a sense that this was a perceived distraction from the achievement of the strong results and learner performance required for a good Ofsted inspection result. However, this was not a unanimous view. It was countered by other expressions of the positive benefits resulting from such learning experiences (see Chapters 4 and 5 below) and the fact that some additional 15 hours per week were available to deliver the project-based learning (PBL) aspects; therefore no detriment to learner achievement resulted. These tensions were not strongly evident in the main study the following year.

Motivational factors

Some learners in the research acknowledged that their own previous educational performance had been disappointing to them: they might have experienced boredom in their previous school, or had a desire to pursue the UTC subject specialism, believing they had the capability themselves to demonstrate better outcomes in terms of educational results. Occasionally these sentiments were linked to a perceived negative association with their previous educational establishment or an attachment of blame to perceived failings of

their previous establishment. For example, individuals' perceptions of the teaching quality of their previous school were that it had not served them well and was the causal factor in the individual's performance. Some individuals were more self-evaluative, acknowledging that their experience had not been better because they had not been more motivated to work hard previously.

A common theme in learner survey responses was the desire to master subject knowledge within the curriculum specialisms of engineering or computer science studied in the selected case study UTCs. This was frequently linked to the learner's expectation that this would give them career advantage, or at least a solid foundation to achieve greater certainty of job outcomes upon leaving the UTC.

Participating teachers and head teachers supplied strong evidence of their perception of how learners appeared to be much more motivated in a UTC environment. Many examples of students being particularly engaged or interested in learning or displaying a 'thirst for knowledge' (Ofsted Schools Inspection Handbook 2015:55) were cited, with teachers considering that far less time was wasted in a UTC environment because learners came to class motivated to engage with learning, and had very clear targets and achievement goals. Consequently behaviour issues were not a detractor to progress in learning compared to other environments teachers had experienced.

The survey questionnaires and results of focus groups indicated that goal setting had been a motivational factor, as was interest motivation related to the subject specialisms of the case study UTC's and the curriculum tasks and learning style.

Learners participating in the study reported that extrinsic motivational factors were important. Well-defined career progression pathways with meaningful employer engagement were frequently referred to. Learners also indicated intrinsic motivational factors affecting their actions, particularly a greater autonomy in and enjoyment of learning and affinity with the ethos and values of their UTC.

Finally, there was also a strong expression of self-schema motivation: learners discussed their raised self-esteem and confidence and the fact that they felt a better person for having attended a UTC.

Government policy initiatives

The two case studies present significant learner enthusiasm for this government policy initiative. The close employer links resulting in perceived greater realism of curriculum project tasks are strongly endorsed both by learners and Ofsted. The innovative collaborative learning style is also positively reflected and suggests that this particular policy intervention to raise engagement in and enthusiasm for technical vocational education has features worthy of duplication in the wider secondary education sector.

5.2 Contribution to knowledge

Learner comments in this study reflect their strong appreciation of what they perceive to be a new learning style (reflecting theories advanced by Prensky, presented in chapter 2), characterised by greater independent research in learning and working intensively with employers on perceived realistic tasks. Learners spoke of the benefits of working in vertical learning groups, set within a collaborative learning culture. A strong sense of social learning in the school micro-communities is gained, reflecting the theories of Lave and Wenger cited above in the literature review. Learners appreciated high quality teaching and supportive teaching, taking place in smaller teaching groups than in their previous schools. They also identified a greater focus on goal setting than in their previous school and more frequent targeted feedback. In summary, greater engagement in learning and resultant enthusiasm, learner-identified improved grades, raised self-esteem and positive affect have been identified in this research. This is, I would argue, the contribution to knowledge: the very positive impact these features together, within the context of a government supported policy initiative, appear to have had on learner motivation and enjoyment of technical or vocational learning.

As stated above, all schools are expected to set ambitious goals, to provide excellent support and interesting learning tasks. Other schools however are not

able to benefit from the strong employer links, the extended study week, the state of the art resources and learning and assessment in vertical age groups. Any one of these benefits alone might not have resulted in the positive endorsements recorded from learners; it is the combination of all these factors together that I would argue has achieved strong motivational impact.

This research forms part of early investigations into the impact of the UTC curriculum model on learners. Given the sample size, it is not possible to conclude that any one area of motivational theories consistently predominates, but rather that a range of motivational theories as documented above (Murphy and Alexander) is influencing learner actions. It is significant that all five thematic areas of motivation as identified in the literature review above are recorded as present in the views of learners and their descriptive comments. I believe that the learner descriptions of their experiences, which are overwhelmingly positive, indicate that the combination of intensive employer engagement, project –based learning and peer learning with wide use of technology has achieved a significant impact on motivation for learning. This is supported by findings from Ofsted, cited above. Our knowledge of factors which can make technical and vocational learning more appealing and add to young people’s motivation has been enhanced by the findings from the case studies in this research.

5.3 Recommendations for further research

Lord Baker has clear aspirations for the future in respect of role UTCs should have in any national skills strategy. As he noted:

So over the next 3 years I would hope that the next government will say, look we will have a 10 year programme the purpose of which is to elevate the status, level and success of technical education, and that's what I think should be the object of the next government. (Interview transcript 2014)

One further feature of this research merits a final comment. As acknowledged above, I appear to have been extremely fortunate in my choice of UTC case studies. Although the two described in this study are considered as examples of excellent and good study environments, a small percentage of other existing

UTC have attracted poor ratings from Ofsted, and results data from others do not show significant above average achievement by learners. Two UTCs at time of writing have been closed. I am conscious therefore that the features of the case study UTCs I am describing as being potentially linked to raised motivation and learner perceptions of greater educational relevance may just be unique to the sets of circumstances pertaining to the two case studies, particularly their leadership and management. Further research therefore is required over time into successful UTC with high achievement levels.

Throughout this research enquiry I have sought to examine the degree to which a combination of motivational theories, government policy and evolving pedagogy have offered an opportunity for young people's learning in vocational education to be enhanced and new knowledge to be identified. I have used the findings from the literature review in chapter 2 to inform the research methodology and methods used in the case study venues and demonstrated a clear link with findings. I have proposed that learner motivation has been increased in the UTC model as a result of the unique interaction of a number of factors: high quality teaching; intensive employer involvement; longer teaching week; greater use of independent learning; vertical collaborative learning; intensive goal setting and strong support from a culture of mutual respect in the UTC curriculum model. All of these factors have been combined together in a government policy initiative.

In considering the nature of future research I feel it would be particularly beneficial for these interacting factors to be examined. I would therefore point to a number of areas where further work would be helpful to develop new knowledge identified in this thesis:

- A longitudinal tracking of learner outcomes in UTCs over time, to identify successful examples for further study and to track subsequent employment profiles of UTC learners
- A scrutiny of gender and social class recruitment patterns over time and the reasons why learners continue to choose a UTC school
- An investigation into the more widespread use of vertical learning groups and peer collaborative learning generally and any link to learner motivation and achievement

- An examination of how greater meaningful employer involvement with learners in vocational learning projects could be facilitated in non- UTC environments
- Further study into the encouragement of greater learner autonomy in learning set in a learner supportive school culture
- Further study into group goal setting and learner motivation in UTC contexts.

5.4 Personal reflections on the study and concluding comments

At times I have felt particularly privileged to observe the motivated learners in this study, for example as they were explaining their project outcomes to a panel of multiple employers or pitching in a competition for a summer internship. I have seen inspiring elements of a new curriculum delivery style in a new type of learning environment in the case study UTCs visited, facilitated by a government policy initiative. I acknowledge that I have been fortunate to be part of a developmental journey in two successful environments but I sincerely hope that the elements that I believe are identified as potentially contributing to that success can be made portable for more learners in the future.

6. Glossary

AVCE	Advanced certificate of Vocational education
CPVE	Certificate of Pre-Vocational Education
DBIS	Department for Business, Innovation and Skills
DCSF	Department of Children, Schools and Families
DES	Department of Education and Science
DfEE	Department for Education and Employment
DfES	Department for Education and Skills
DIUS	Department for Innovation, Universities and Skills
EBAC	English Baccalaureate
EU	European Union
FE	Further Education
FSM	Free School Meals
GCE	General Certificate of Education
GCSE	General Certificate of Secondary Education
HMI	Her Majesty's Inspectorate
IB	International Baccalaureate
IFP	Increased Flexibility Programme
ICT	Information and Communications Technology
ILT	Information Learning Technologies
KS	Key Stage
LA	Local Authority
LEA	Local Education Authority
MSC	Manpower Services Commission
NEET	(young people) Not in Education, Employment or Training
NIACE	National Institute for Adult and Continuing Education
NVQ	National Vocational qualification
OFSTED	Office for Standards in Education
OECD	Organisation for Economic Co-operation and Development
PBL	Project based learning
PISA	Programme for International Student Assessment
SAT	Standard Assessment Task
TVEI	Technical Vocational Education Initiative
UTC	University Technical College
VTE	Vocational and Technical Education
YTS	Youth Training Scheme

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8. Appendices

8.1. Table of activities conducted in Pilot study 2014

Month 2014	Activity	Purpose
February and March	Seek support from Baker Dearing Trust for the proposed study, identify locations and contact head teachers to arrange visits. Interview Lord Baker at BDT and Head of Research, architects of the curriculum model	Seek contrasting environments (N/S) where possible and different subject specialisms. Interviews at BDT were to obtain insight into the driving forces and rationale of UTC development
April,	Liaise with head teachers to organize samples of learners in years 10 and 12	Ensure commitment is gained from participating organisations
May	Prepare and distribute parental permission letters for learners in sample aged under 18. Obtain approval from University Ethics Committee	To adhere to ethical guidelines and raise awareness amongst parents of the nature of the research
June	Conduct questionnaires, focus groups and interviews in each location	To test the prepared questions in each survey type, following constructive comment from supervisors
July	Transcribe recorded interviews and focus groups and analyse questionnaires completed by learners and teachers	To evaluate the nature of responses recorded by learning professionals and learners
September	Prepare a report on the findings in each location and evaluate the effectiveness of the approach used in the pilot study	Evaluation of the approach was important to determine which questions had produced meaningful responses, and those, that needed further adjustment. Reports produced were shared with Baker Dearing trust and head teachers

Table 8.2. Main study sequence of activity

Month 2015	Activity	Purpose
March, April	<p>Review previous survey questions and methodology from previous year in the pilot study</p> <p>Liaise with head teachers to agree schedule and seek parental permissions where appropriate</p>	<p>Improve comprehension of learners and consider fitness for purpose and link with research questions.</p> <p>Obtain continued commitment</p> <p>All surveys were adjusted slightly either by refinement of questions or additions of more focused and detailed sections to test particular research questions. Big impact measures (Prensky: 2012) used with year 10 and 12 in main study.</p>
May	<p>Focus group and questionnaire activity with Yr. 13 and 11 in two locations, 40 participants.</p> <p>Class observation.</p>	<p>Repeat survey with learners who participated in the pilot study, as far as possible. Testing to see if their previously stated motivation and engagement is still as strong in year 2, with more focused questions on key themes.</p> <p>Repeat observation of learners engaged in collaborative learning.</p>
June	<p>Focus group and questionnaire survey with new participants randomly selected in years 10 and 12 in 2 locations and up to 40 new participants.</p> <p>Class observation.</p> <p>Interviews with head teachers</p>	<p>To examine if engagement and motivation of new participants reflects the findings of the pilot study in the previous year.</p> <p>Pilot study questions used with refinement to facilitate understanding. Additional sections added to questionnaire for more focused examination of new participants</p> <p>Views of leaders sought on learner motivation, engagement and performance</p>
July	Transcription and results analysis.	Examine if results in main study correlate with findings of pilot study and determine if significant factors can be evidenced quantitatively.
August	Reflection on findings	Consider if further data collection is needed and if so in what form
September	Analyse student results data	Seek answers to research questions posed

Table 8.3. Questions used with Lord Baker and curriculum architects of the model 2014 Pilot Study

Question	Rationale
1. You appear to be very clear on the opportunities you think schools should provide to prepare young people for ‘life, work and further learning’ – can you describe how you came to this view of what education should be like?	General question on the vision for UTCs
2. Within your view of education you have proposed a clear 14-18 phase and 4 distinct pathways (technical, liberal arts, sports/creative and career pathways) – to what extent do you feel that progress has been made towards achieving this?	Seeking detail on the justification behind the designated UTC pathways
3. You champion ‘motivation’ as an integral part of your proposed pathways – in what ways do you think the UTC model can encourage motivation amongst learners?	Testing the respondent’s view on how learner motivation is expected to be affected by the UTC model
4. Ofsted look for a ‘behaviour framework for learning’ – have you seen examples of this in your visits to UTC’s?	Testing for consideration of Ofsted requirements
5. Would you say that you have witnessed young people displaying a ‘Thirst for Knowledge’?	Testing for consideration of Ofsted requirements
6. Do you consider that there will be constraints in the future on the number of UTC’s possible?	Question on how the respondent sees development of UTCs
7. Do you see Career Colleges developing in England in the same way as in the US?	Question on how the respondent sees development of UTCs
8. What would be your dream for the next 3 years in terms of continuing to make a lasting impact on young people’s education in England?	Question on how the respondent sees development of UTCs
9. And the counter to that- What do you most worry about in terms of UTC development?	Testing to see what concerns, if any, would be identified
10. How do you see FE/Career Colleges/UTC’s and Studio Schools complementing each other and surviving in the next 5 years?	Question on how the respondent sees development of UTCs

Table 8.4. Learner survey questions used in the 2014 pilot study with year 10 and year 12 and the link to the research questions

Question	Rationale
1. If you remember back to before you started here, can you say a little about what attracted you to apply?	To determine learners' views on their motivation to apply
2. What did your friends think about your decision?	Testing the influence of peers, known to be important in this age group, an extrinsic motivator
3. What did your parents think about the decision?	Testing for extrinsic motivational factors
4. Were there other things that encouraged you to choose the UTC?	Testing for general motivational factors, interest, self schema, goals, intrinsic or extrinsic motivation
5. What have you liked most during the year?	Testing for interest motivation
6. Is there anything you would like to change?	Testing for Interest motivation
7. How do you compare your learning week here with what you had been used to in your previous school?	To determine the learners' views on the relative importance of the curriculum or learning model in their overall motivation
8. Is the way you learn here different in any way to your previous experience?	To gauge learners' perceptions on how they experienced the different style of learning, testing for presence of innovative UTC features
9. Do you feel you are encouraged to set and achieve personal goals to a greater extent than in your previous school experience?	Testing for goal setting motivation
10. Thinking about what you have done in the UTC, has it made 'doing a good job' generally more important to you or is coming 'first' or being the best in class more important?	Testing for goal setting orientation, mastery or performance focus
11. Who do you tell about your achievements in the UTC?	Testing for self schema motivators; sense of pride, sense of belonging in the community of practice
12. Have you been able to work with employers? In what ways?	Testing for extrinsic motivation from employer links
13. What did you feel about the process?	Testing to see if intrinsic motivational factors applied in respect of working with employers
14. Please indicate how you feel about the statements which follow – tick the box which most applies - It was a big decision for me to choose the UTC I think I made the best decision for my future I am receiving teaching and learning, which meets my	Likert 5 point scale question in 4 parts - Testing for elements of self-determination theory and self- schema motivators.

needs I am receiving support as a student, which meets my needs	
15. Overall, what would you say about your year in the UTC?	Open question to allow free comment - Testing for presence of innovative features expected in UTC model, likely to improve motivation

Table 8.5. Teacher survey questions used in the 2014 pilot study

Question	Rationale
1. How long have you been working at this UTC? Previous role?	General question
2. What attracted you to the post?	General question
3. What do you feel is distinctive, if anything, about teaching in a UTC?	Testing to identify innovative features of UTC
4. How would you describe UTC learners in this school?	Testing to see if learner motivation is identified
5. Can you describe any differences in learner behaviour, which you have observed, compared to learner behaviour of non-UTC learners?	Testing to see if learner motivation is identified
6. In what ways have you as a teacher interacted with employers to support Learning?	Testing for impact of UTC model features
7. How have learners interacted with employers in the learning activities?	Testing to see if extrinsic motivational factors identified
8. Please describe the integrated project approach and how you believe that it fits in the overall delivery of the curriculum?	Testing to identify innovative features of UTC
9. How do you support your own CPD with employer interaction?	General question
10. Can you give examples of how this has improved the quality of the learning experience?	Testing to see if extrinsic or interest motivational factors identified
11. Are there things you think children should learn here that have an impact outside of the school?	Testing to see if cultural or community identity are a factor
12. Can you give examples of positive impacts on learner behaviour and/or motivation?	Testing for examples of greater learner motivation
13. Do you see any evidence of features of the UTC model giving support to the establishment of a 'behaviour framework for learning'?	Testing for the importance of Ofsted required features
14. Do you see evidence of a strong goal-setting pattern amongst learners?	Testing for influence /presence of goal setting motivational theory
15. Do you see evidence of UTC learners developing a 'Thirst for Knowledge' and if so, how?	Testing for the importance of Ofsted required features
16. What kind of culture do you prefer to establish in the classroom to reflect aspects which you consider important for example parity of esteem, predominance of academic excellence, politeness and respect, employability or meeting others' needs?	Testing to see if cultural or community identity are a factor
17. To what degree does meeting the Ofsted performance criteria for 'good' influence your curriculum/lesson planning? Examples?	Testing for the importance of Ofsted required features
18. Do you feel that there are any negatives for learners in the UTC curriculum model?	Testing for perceptions of negative aspects of UTC model

Examples?	
19. Is there anything else you would like to say about learners, learning or motivation in the UTC curriculum delivery model?	Testing for examples of greater learner motivation or perceived positive impact of UTC model

Table 8.6. Head Teacher questionnaire 2014 pilot study

Question	Rationale
1. How do you feel that your UTC presents a distinctive approach to learning?	Testing for approach to embedding required features of UTC model and potential impact on learner motivation
2. What attracted you to the post, how do you think the vision you have described was a part of that, was it a blank canvas that you filled in?	General question to determine approach to being a learning organization, how the HT views and implements any innovative learning style
3. Has the reality of the first year been as you had imagined? Detail?	General question to allow HT to express their views of the year
4. What have been the 'high spots' in the year?	General open question to allow free comment to see if HT's identified particular features of the UTC model
5. And the challenges?	General open question to allow free comment to see if HT's identified particular features of the UTC model
6. How do you see your students compared to those in other schools? For instance, is there something about a UTC student, do they have a particular characteristic or motivation for choosing a UTC?	Triangulation question to see if the views of the HT on motivational reasons for students align with the views of the learners, and to see if extrinsic, intrinsic or self-schema motivational factors are identified by HT's
7. Do you feel there is a high level of motivation? Reasons?	Triangulation to get the views of HT's on the level of motivation present
8. How would you encourage a 'behaviour framework for learning'?	Testing to determine how much the requirements of the Ofsted inspection framework influence HT's thinking
9. Can you give examples of how your learners display a 'Thirst for Knowledge'?	Testing to determine how much the requirements of the Ofsted inspection framework influence HT's thinking and to identify any situational interest motivating factors present in learners, in the HT's view
10. Can you say a little about the kind of culture you aim to encourage e.g. focus on employability and setting and achieving challenging goals?	Testing for the importance of culture as a motivational factor, community of practice, sense of shared values, evidence of goal setting motivational theory or extrinsic motivational factors
11. What are your priorities for the next two years?	General developmental question
12. How would you describe the benefits of the UTC model for learners?	Testing again the views of the HT on the impact of the UTC model and if the innovative features are a factor
13. And for teachers- recruitment of, positive sell?	General leadership question relating to the perceived difficulty of recruiting excellent teachers to achieve impact with learners
14. Is there anything you would say to	Open question to test the relative

sum it all up (...) your UTC experience?	importance in the HT perception of particular features of the UTC model
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The Main Study additional questions

Table 8.7. Additional questions for learners in years 11 and 13 in 2015

You have now been at the UTC for 2 years. Reflecting on your experiences, how would you rate the following areas?

1. Overall enjoyment of the UTC experience?
2. Have your feelings about the UTC experience changed over time?
3. Thinking about your overall experience at the UTC, what have been the most important factors? Tick ALL that apply.

<input type="checkbox"/>	High quality of teaching	Interesting tasks in class	<input type="checkbox"/>
<input type="checkbox"/>	You can choose tasks you prefer to do	Tasks are realistic/real world projects	<input type="checkbox"/>
<input type="checkbox"/>	Interesting work with employers	Work experience opportunities	<input type="checkbox"/>
<input type="checkbox"/>	Support to set challenging goals	Frequent progress review	<input type="checkbox"/>
<input type="checkbox"/>	Teachers give us lots of feedback on how to improve	We are encouraged to do our best always	<input type="checkbox"/>
<input type="checkbox"/>	Personal support for my needs	Setting my own achievement targets	<input type="checkbox"/>
<input type="checkbox"/>	Extra help from teachers when I need it	Working in groups with older or younger students	<input type="checkbox"/>
<input type="checkbox"/>	Learning from my teachers	Learning from other students	<input type="checkbox"/>
<input type="checkbox"/>	Teaching things to my teachers	Teaching things to other students	<input type="checkbox"/>
<input type="checkbox"/>	Learning from employers	Learning from projects	<input type="checkbox"/>
<input type="checkbox"/>	Use of good equipment/resources	Use of ICT/technology in lessons	<input type="checkbox"/>
<input type="checkbox"/>	Finding things out for myself	Doing independent study	<input type="checkbox"/>
<input type="checkbox"/>	Longer hours during the day	No homework	<input type="checkbox"/>
<input type="checkbox"/>	Everyone can achieve their potential	The UTC has given me the opportunity to progress to my chosen career/next stage of study	<input type="checkbox"/>
<input type="checkbox"/>	Careers Guidance	Teachers take time to get to know us	<input type="checkbox"/>
<input type="checkbox"/>	It feels like a family here	The culture of the UTC is one of high achievement	<input type="checkbox"/>
<input type="checkbox"/>	The school is about the right size	Students get on with their work and do not disrupt others	<input type="checkbox"/>
<input type="checkbox"/>	The culture of the UTC is relaxed – you are not pushed all the time	We use the Internet a lot in our learning	<input type="checkbox"/>
<input type="checkbox"/>	I feel a better person for having attended the UTC	The UTC has made me more motivated at school	<input type="checkbox"/>
<input type="checkbox"/>	My school performance has improved in the UTC	<i>Spaces left blank for learners to add other important factors</i>	<input type="checkbox"/>
<input type="checkbox"/>			<input type="checkbox"/>
<input type="checkbox"/>			<input type="checkbox"/>

4. If you have ticked more than 1 factor in question 3 above, go back and rank all those you have ticked in order of importance, starting with 1 as the most important factor in your experience (you can mark things as equally important e.g.3=)
5. How would you describe the best thing about the UTC experience to another student considering an application?
6. What would you wish to change or improve about your UTC experience?
7. Overall, do you have any other comments about the UTC?

Table 8.8 Additional question for year 10 and 12 learners in 2015

To what degree would you consider that the following features are encouraged in your learning at the UTC, compared to your previous school?

Activity	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
1. Research answers to questions on your own					
2. Connect what you learn and do at the UTC with the real world of business/industry					
3. Get help to improve your skills					
4. Interact with other students and teachers as a learning partner, to learn in collaboration					
5. Use your own devices or resources to enhance learning (mobile, laptop, video/ You tube)					
6. Use more peer to peer teaching with other students than in your previous school					
7. Have more choice in what activities you do within an assignment or task					
8. Use and organise classroom technology					
9. Share and celebrate your successes on You tube					
10. Interact with other students in other learning locations, e.g. other UTC or via Skype					

Table 8.9. Head Teacher questionnaire 2015

Question	Rationale
1. Do you consider that levels of student motivation are as high this year as in 2014? If so, to what do you attribute this?	Seeking the HT perception of levels of motivation and reasons attributed
2. To what degree do you feel that staff continue to encourage students to set personal goals? Do you think that goal-setting has played any part in their motivation	Testing the importance of goal-setting theory
3. To what degree are group goals set or encouraged?	A focus on group goal setting, given the frequency of group tasks set in the PBL curriculum
4. To what degree would you say that the UTC experience adds value for learners?	Testing the HT's perception of the benefits of the UTC model
5. Do you consider that learner performance will be evidenced by results as being improved by the UTC model?	Testing the HT's perception of possible impact of the UTC model on learner results
6. How important do you feel that the industry projects have been within the overall curriculum delivery?	Testing the HT's view of the significance of collaborative and project based learning in the curriculum
7. How important do you feel that vertical age integration (the interaction across the year groups) has been in the UTC curriculum delivery model here?	Testing the HT's perception of the impact of widespread use of vertical learning
9. To what degree would you consider that the following features are encouraged in the delivery of learning at the UTC, compared to a non-UTC school? Detailed explanation given of each question by DD. (Grid adapted from Prensky 2011).	HT's were asked the same question as the year 10 and 12 learners for triangulation

8.10 Researcher's journal

February 2014

Begin planning the contact and data collection for the first year in the UTCs. Contact made with David Harbourne lead researcher at Baker Dearing Trust who offers a number of interviews including an early meeting in March with him to discuss the position of UTCs.

During the course of the meeting he covers the early Genesis and rationale for the employer intensive curriculum and the strong commitment to reflect the real working world, hence the 40-hour week envisaged for students. The link with universities is intended to raise the status of the venture and offer a link to knowledge development in the university sponsor, and also to link with the practical applications within the industry partner sponsors. Each UTC will have a strong link to local industry and wealth/employment creation. He names 8/9 open UTCs which it has been agreed would be suitable. When I question 'suitable' to determine any bias, he indicates that they are proposed as buildings have been completed on time and opening not delayed, or they have recruited to target, in other words they are operating as smoothly as can be expected 5 months in to their start year. From these proposed UTCs I go back after a week of checking context and select Liverpool (Life Sciences) Bristol (Engineering) Sheffield (Media Arts and Engineering) and Reading (Computer Science and Engineering). These are agreed by BDT and I am left to make contact with the head teachers.

April 2014

Contact made with all four locations. I approach each with an email to the Head's PA requesting a brief phone call to the Head to explain some research I have been given permission to seek their involvement with. All 4 arrange phone calls. Liverpool after listening politely immediately decline to be involved on the grounds that their main objective is to secure at least a good judgment in their Ofsted and when they do, maybe will have time to consider being part of research. Each of the remaining 3 agrees to be part of the research and I follow up the phone calls with explanatory emails, sample correspondence and a checklist of what needs to be done prior to my visits. I explain carefully what needs to be done to comply with BERA ethical guidelines and send samples of letters to be sent to parents of minors.

May 2014

In the chasing period now to make sure that the 3 UTC still in the project are complying with getting parental requests and making sure that the schedule will be deliverable. S has the PA to the Head organising everything and as one might suppose she is very thorough and gives confidence.

R is being organised by the Head, needs a bit of support but again I think does want to be in the project. Having concerns about B as slow to respond and have received electronic communication alerting me that the Head is absent. I am most worried about the organisation within B.

On 26th B alerts me that they cannot be part of the project as they feel they have too many other conflicting priorities. They indicate that they will want to try again next year to be part of it and I agree to re-contact them if there is another opportunity.

June

Visit BDT for interviews with senior staff. Lord Baker explains at length his personal vision, ethos and commitment and has lots of positive stories to hand about excellent links with employers and exciting projects happening.

July

1st- Visit to S

Apart from initial difficulty struggling to find anywhere to park, all works out well. The schedule was emailed in advance and they have absolutely stuck to the way I advised. Head's PA is clearly very committed as are all the staff interviewed. Student behaviour is remarkable: atmosphere seems very adult with lots of productive activity going on. Learning centre is immediately facing the entrance foyer of the school. All learners around cabaret style tables, probably 60 or so at 8.30 with some teachers passing through the learning centre on their way to other rooms. The building is interesting with lots of sympathetic conversion and good displays from local employers and their industries. The Head is very passionate about his task. A good day spent with excellent material gathered and strong endorsement from learners. Year 12 learners are able to recount start-up housekeeping niggles, late ID cards, IT equipment glitches and so on, but nevertheless all are very positive about their first year. The year 10 cohort also similarly positive and looking forward to the next year of operation. Both cohorts have some misgivings about how the school will cope with double the number of pupils; there is a sense of them jealously guarding a beneficial staff/ pupil ratio.

4th July - Visit to R

I arrive at 8 am and eventually meet with the Head at 8.20. I am advised that all the interview sessions have had to be curtailed because approximately 40 employers are on site judging presentations from the whole school on a project based task, and I agree that I will try to work around this.

The schedule a bit hap-hazard with staff selected at random including the receptionist who of course could not comment on many of the questions. The student interview sessions are critically affected by the truncated timescale and I wonder if any reasonable comparisons with S will be possible. Nevertheless all the learners are again very enthusiastic about their experience, particularly the teaching. Younger learners talk about feeling part of a family and I am struck by the community ethos.

I visit the employer presentation in the school hall, to observe the learners during the preparation hour. All school pupils are present divided into mixed-age teams with one member of staff on each team as an advisor. Some teams have selected a year 12 as project manager but others have a year 10. Interesting to see them all collaborating. I talk to a few of the employers who are enthusiastic about what the students have produced. Students speak intelligently about the work they have completed as a team. Project teams are putting the final touches to their contributions. The head teacher is also part of a mixed-age team of young people presenting their ideas on how they would redesign the foyer at the new station reception being built in Reading. Employers are also moving between groups, asking questions on aspects of each team's work, or seeking clarification on the visual display

boards. The level of engagement is very impressive. The winning team will benefit from summer internships at companies participating.

Having seen both sites I am able to reflect on similarities and differences. Both sites are strongly in support of peer learning and collaborative learning experiences. Also I am struck by the huge importance for the learners of having opportunities with employers and tasks, which seem realistic rather than more traditional work experience in type. This seems to be partly responsible for the level of commitment and enthusiasm observed in the learners.

Both sites also speak honestly about what has not gone so well, with S slightly more frank than R. S presents as strongly focused on giving the young people future opportunities and R is strongly focused on creating a community of learning in a particular style.

August / September 2013

Almost all available time this month has been spent transcribing interviews conducted in the field work and producing summary reports.

October 2013

Meeting with BDT David Harbourne, Head of Research. He is very enthusiastic about early findings and how to build each centre profile over time. He is also honest about issues: the predominance of male teaching staff; the problems with some of the building work delays and the difficulty of learner recruitment in a competitive environment with many schools in the catchments having to be courted and won over.

I provide feedback to each UTC on their interviews and data. Both centres are very pleased with their reports and agree to be part of the following year data collection exercise.

My meeting with supervisors is positive with much time spent identifying the RE and refining it and the key themes, which need to run through the thesis. We agree to meet again in December.

November December 2014, January 2015

My anticipated next meeting with supervisors has to be postponed due to slow progress on writing Chapter 2 the Literature Review. I manage to arrive at having a first draft mostly completed by the end of January, helped by more research appearing in the public domain on UTCs. The literature review on motivational theories doesn't seem to be conclusive in that there are so many individual, contextual and temporal factors influencing individuals' actions. I send Chapters 1 and 2 to supervisors, although not quite ready, and more work is needed on analysis and summary.

February 2015

I meet with supervisors and discuss aspects of chapters 1 and 2. I now have an Interim Management position in London for 3 months so not sure how this will affect my ability to maintain momentum in the writing.

Chapter 2 literature review seems a huge hurdle and not sure how to constrain the volume of work on motivation.

Writing continues slowly but I have something of a breakthrough in reading an article by Murphy and Alexander, which seems to reflect very well something of my developing views and has helpfully categorised the various aspects of motivational theory. Decide to discuss the use of this approach with Dr. S who agrees that the use of Murphy and Alexander's framework to summarise motivational theories would be useful and helpful, so I feel as if this is a huge step forward.

April 2015

I begin preparations for the summer data collection in the two locations. I have made contact with the HT in R and Head's PA in S and they are considering the best time for the visits.

By the end of April the visit days are fixed with each location. S has opted for all 4 year groups on the same day in late June, which will be a packed day, and R has decided to do leavers year 11 and 13 in May and continuers, year 10 and 12, in June. I am not sure at this stage what the impact of this will be on those attending. From my perspective I want to try and get maximum attendance in this second year for the main study, but both Heads are clearly very anxious about getting the best possible exam results this year as it will be their first set and particularly important for the forthcoming Ofsted visit in each case. I don't feel I have much choice but to agree with the wishes of the HTs in respect of the visit timings, as the important thing is to secure the data collection for the second year in each location.

May 2015

Visit to R to interview continuers. The year 11 students seem particularly anxious and the focus group raises a number of niggles around the need for attendance in revision weeks, the late start to study leave, the rush to collect missing BTEC assignments and the slight feeling of panic. All seem to point to high anxiety around the importance of the first set of examination results. However, having got the moans out of the way, the focus group year 11 gives a positive account of their two-year experience. All students interviewed indicate they are remaining in the UTC to do 4 A-levels in each case. They have mixed aspirations post A-level with one student very clearly envisioning Apprenticeship as a pathway and most others expecting to go to University.

The year 13 students generally more measured with very positive things to say about the impact two years at UTC seems to have had on their grades and them as people. Positive reports emerge about the character-building nature of being a project manager, with students recognising that managing older pupils was not an experience other mainstream school pupils will have. They are clear about the career edge they felt it had given them. Most positives linked to potential career advantage but also some insightful comments about their own personal development. All would recommend the experience. I have the opportunity to view work displays and team project submissions, which are in school hall. All very task focused and practical in nature.

July and August 15

I spend several weeks transcribing the interviews from the focus groups and conducting preliminary analysis on the completed questionnaires.

I code all the transcribed focus group interviews into NVivo by theme of enquiry.

Reflecting on the two years of data collection in the UTCs I feel that I have been privileged to meet some very motivated learners and to observe them carrying out tasks. The Autumn GCSE and A level results in the two locations have been good, exceptional in some cases. I am thinking about student Y in UTCR and her story of having liked maths and knowing she could do better. She described being encouraged to set higher goals for herself and she is now the proud owner of 9 A* at GCSE. For her, a future has been made by her decision to change schools and go to the UTC.

September 2015

Invited to contribute to a session by the Institute of Policy Research at the University of Bath. They are hosting a development day with senior officers from the Dept. for Education and I will have the opportunity to discuss my research with the Deputy Director in the department responsible for the roll out of the UTC programme.

In the event she is particularly interested in the good news I am able to give her, and the successes that I feel are reflected in the student comments captured. She describes the programme as destined to feature strongly in future government strategies, but clearly has some misgivings about the nature of the data in some UTC locations, the poor recruitment to target in some UTCs and the poor Ofsted results in 2 cases. None of these departmental concerns reflect what I have seen in my two chosen locations. She requests to have sight of my data set once I am at the end of the research and I of course agree. I think she would have preferred a more quantitative approach but clearly this is not what I have and therefore the impact my findings may have is likely to be minimal for her; what she is seeking is hard positive data and outcomes, rather than learner or researcher perceptions.

October and November 2015

I continue writing up chapters and making amendments as suggested following meetings with supervisors.

By the year -end I have first drafts of chapters 1,2 and 3. There are lots of very positive comments from the focus group interviews. Analysis of the questionnaire information is disappointing. Some learners have clearly been challenged in being invited to describe their thoughts in writing; the nature of the vocabulary and accuracy of the writing is revealing of the attainment level of some learners. The interviews have offered much more productive responses, probably because the learners have just been able to communicate verbally without having to expend too much effort.

Now that I look at the questions asked over two years, they seem very perfunctory in nature, but I also reflect that even some of the relatively simple questions produced occasionally incomprehensible or illegible answers on the part of some learners, and I wonder how I could have dealt

better with this mixed -ability cohort. I begin to think that I have collected far too much data, and that really with hindsight, just doing the interviews might have been sufficient. At least the questionnaires do serve to reinforce the messages, which have emerged from the focus groups.

My supervisors provide helpful comments on methodology to support the revisions to chapter 3.

I read a few EdD theses and come to the conclusion that it may have been more productive to reduce the scope of my research enquiry and constrain it to a greater degree before undertaking all the field -work. I think that what I have done is far too broad and will be difficult to make coherent for the final work. The literature review chapter still feels problematic and far too broad- too many themes trying to be examined. On reflection it might have been interesting to make the vertical curriculum collaboration of KS4 and KS5 pupils the subject of the RE due to its unique nature.

Jan Feb March 2016

I am again working in London, so progress completing the data analysis in chapter 4 is slow. I send a draft to supervisors and the general feeling is that the questionnaire data analysis doesn't add much to the overall work. I spend some time redrafting the format of chapter 4.

April 2016.

I have spent a number of weekends doggedly attempting to complete redrafting and I feel as though very little has emerged from 3 years of involvement with the UTC and the data collection.

On a positive note the government's latest education white paper makes a priority commitment to expand UTCs to be within reach of every city. I continue to be surprised that hardly any further articles or research on UTCs have appeared.

I arrange a meeting with supervisors, having spent most of Easter on a further push to complete a complete first draft.

May 2016.

My supervisors make helpful suggestions for next steps and how I might refine my material and strengthen the findings. I spend all available time putting the finishing touches to the work. I arrange a final meeting with BDT, to present a summary of my data findings.
